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June 1988

Department of Natural Resources

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COVER: "Spring Calling," red-winged blackbird, by Brian Wignall. Image has been reversed. For more information, see page 26.

CHANNEL CATFISH

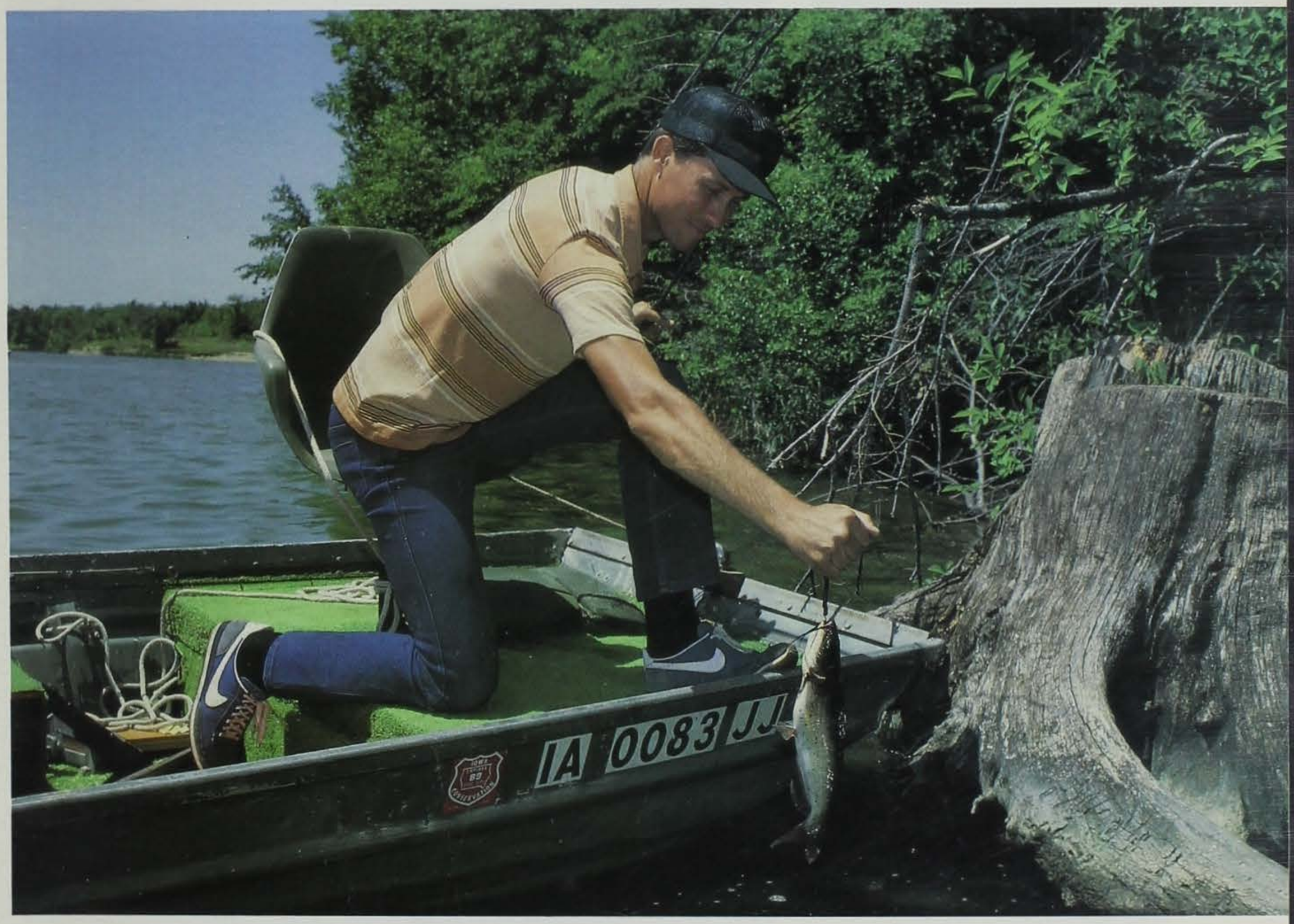
Best-Kept Secret of Iowa's Natural Lakes

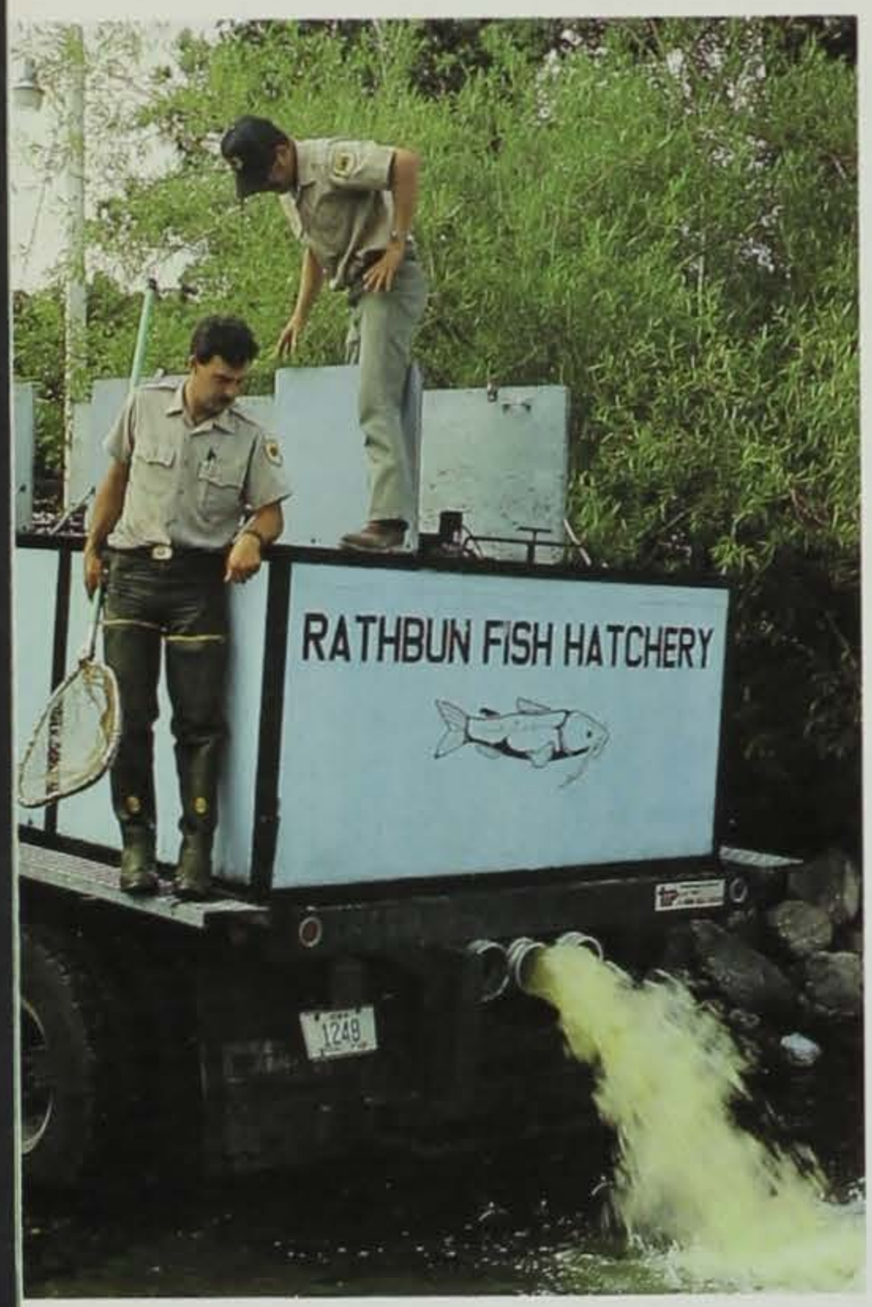
Story and photos by
Lowell Washburn

Whenever anglers chance upon the topic of channel catfish, the conversation will usually turn towards sluggish chocolate-colored streams, sandbar fish frys and homemade concoctions of smelly baits. To others the mention of Old Whiskers paints a slightly different image that translates into the late-night quarry of the southern Iowa farm pond scene.

But to a select, though steadily increasing, breed of enthusiasts, the channel cat has yet another side and represents what, until now, has been the best-kept secret of Iowa's natural lakes.

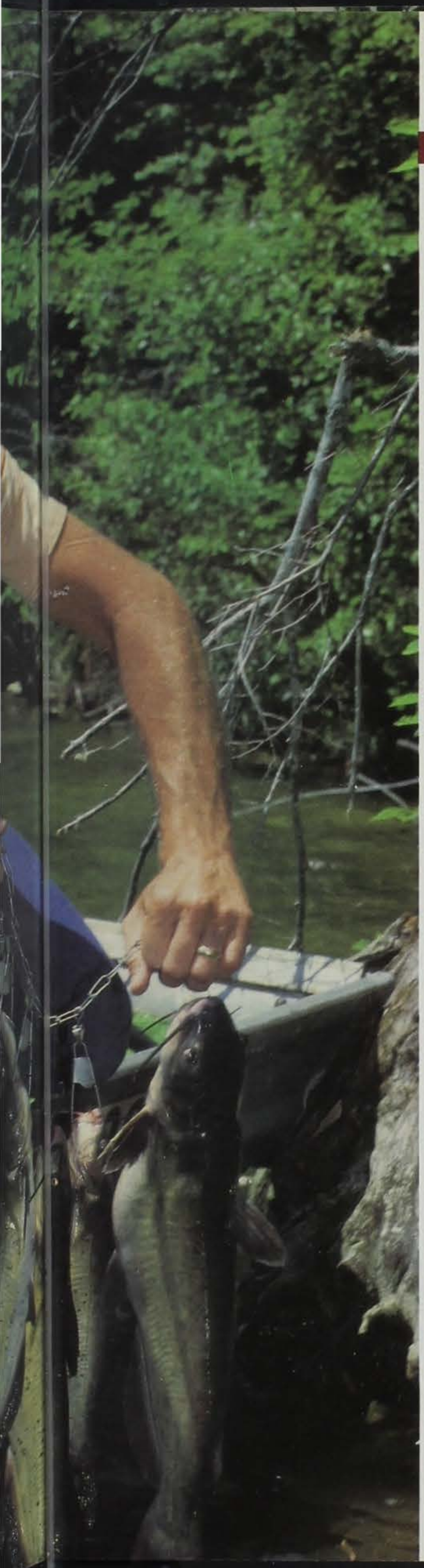
Although the channel catfish does not occur naturally in the state's natural lakes, these larger water bodies did receive small and rather sporadic catfish stockings through the 1970s.





However, with the construction of the Rathbun hatchery in 1978, the picture rapidly changed as the new facility began providing a consistent supply of fish. And since 1980, Clear Lake in Cerro Gordo County, Storm Lake in Buena Vista County and East Okoboji in Dickinson County, have all received regular late summer stockings of seven-inch advanced catfish fingerlings. As a result of these transplants, all three lakes currently support excellent populations of 'cats representing a variety of year classes from the pan-sized "fiddlers" all the way up to hardy, rod-bustin' lunkers.

For the first few years the steadily increasing populations of catfish went largely unnoticed by anglers more geared toward traditional lake species such as walleye, bass or perch. Eventually a few fishermen began to discover this virtually untapped resource, and, once the 'cat was out of the bag, or perhaps in



the bag would state it more fairly, the species' population grew by leaps and bounds.

Creel information gathered in a continuing survey at Clear Lake paints an accurate portrayal of the increasing importance of the catfish to this and other natural lakes. By 1986, the channel cat was among the top five species in the angler's creel, and by 1987 was ranked as second in the creel with an estimated harvest of 8,000 fish.

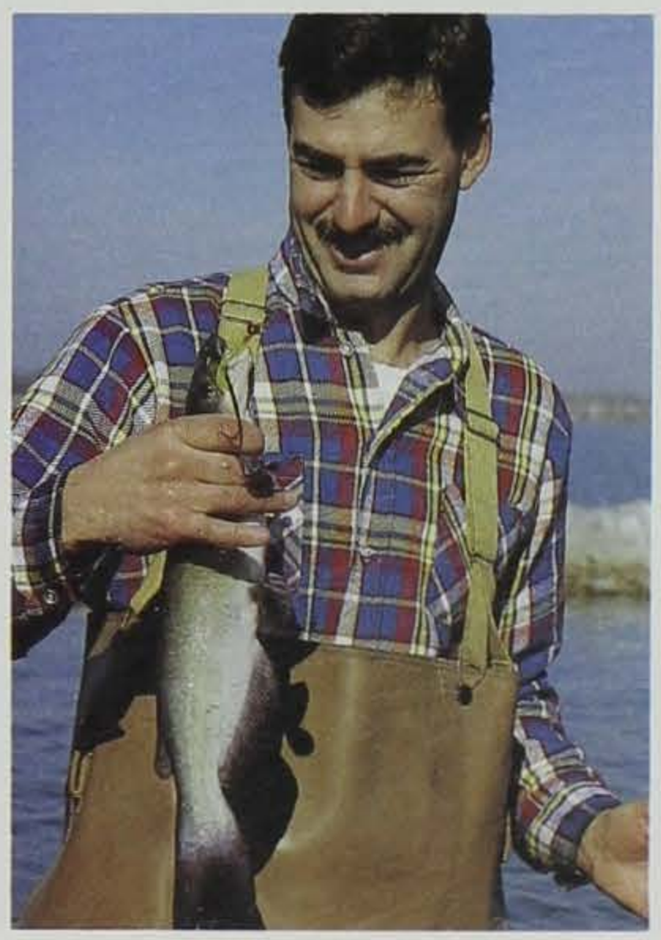
Regardless of where they occur, channel catfish display omnivorous and highly opportunistic foraging habits. Feeding by both sight and smell, they are predators as well as scavengers. Consequently, the fish is susceptible to a wider variety of angling techniques than perhaps any other species found in natural lakes. They are also among the easiest to catch, making them an instant hit with fishing enthusiasts of all ages.

Of course, the most familiar method for bagging the 'cat employs the use of homemade or commercially prepared stink baits. Varying greatly in strength and consistency, these scent lures may be used with specially designed plastic worms, pieces of sponge, or molded into large dough balls around #8 or larger treble hooks. The homemade recipes are by far the most potent, and stories of jars exploding in the back windows of cars are not so far fetched. However, for those anglers with more delicate senses it should be noted that the catfish will also readily consume a wide variety of fresh baits such as raw chicken liver, dead minnows and cut bait. They will also eagerly take live minnows, frogs and crayfish.

At Clear Lake, anglers are frequently reminded of the channel cat's predacious nature when the species hammers the jig and minnow combinations being used by wader fishermen in search of walleyes. Some enthusiasts go even a step farther and find that some ill-tempered catfish will pound a fast moving crankbait with all the authority of a toothed gamefish.

Although all of Iowa's natural lakes enjoy some similar characteristics, the exact method used for pursuing catfish may vary somewhat from area to area. For example, at Clear Lake the majority of fish are taken from docks or along the outside edge of emergent rush beds. By contrast, fishing at East Okoboji is done primarily from the shoreline, with anglers probing the waters around fallen snags, overhanging trees or other obvious catfish habitats. Although the species will feed throughout the day, channel catfish are usually most aggressive a half hour on both sides of sunrise and sunset. But many hard-core enthusiasts will argue that the very best action and the biggest fish come after midnight.

Regardless of the technique, location or time of day, all agree that the real fun begins when you lean back to set the hook. Without exception, catfish of all sizes, even the smaller "fiddlers" can be depended upon to fight like monsters. And it is indeed the channel cat's willing ability to make rods bend and drags smoke, that is the best reason why catfishing currently represents the fastest growing sport of Iowa's natural lakes.



In the Water or on the Plate, Catfish Ranks First With Iowans

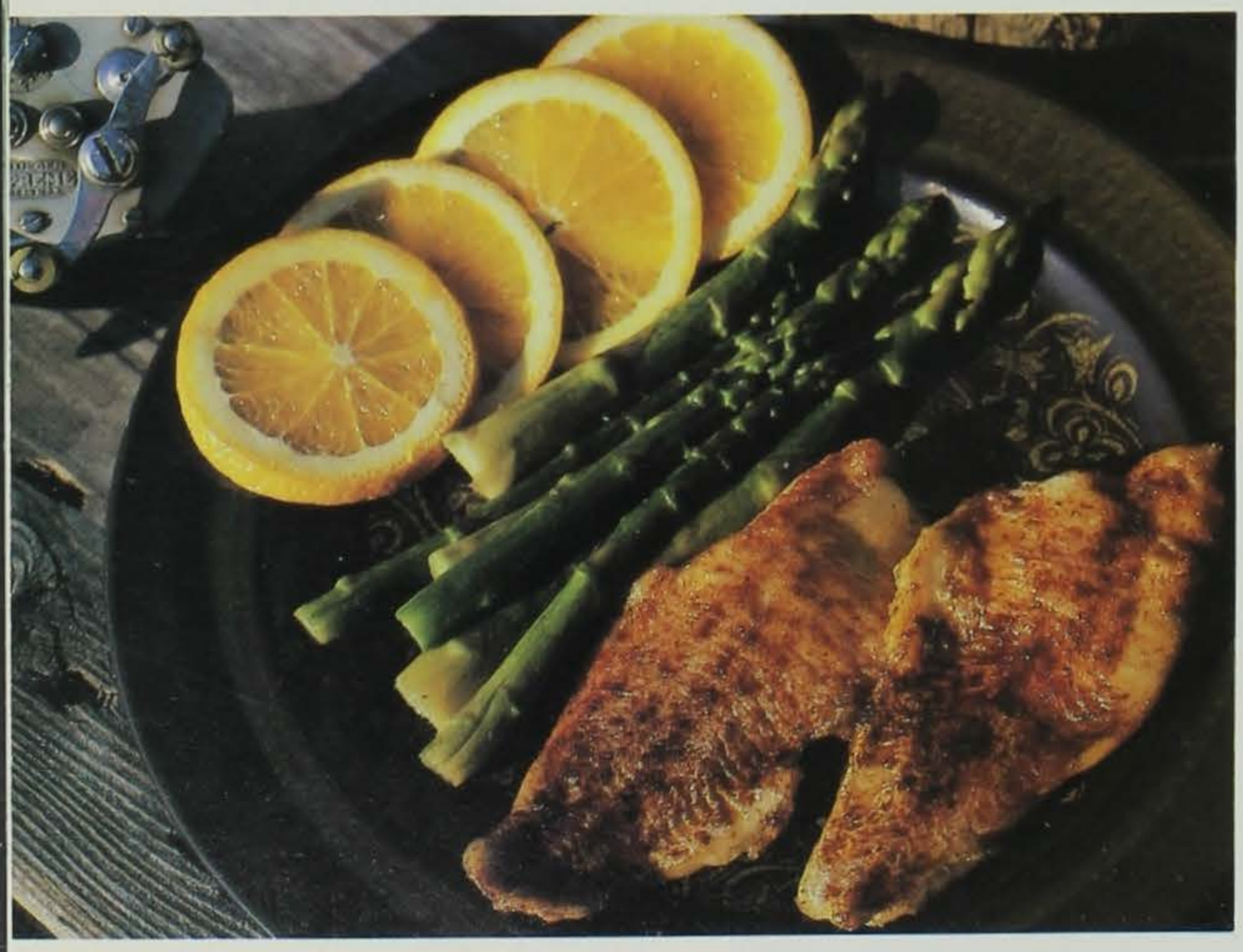
Story and photo by Lowell Washburn

The channel catfish is among the most successful and widely distributed of Iowa fish. It occurs either naturally or through stocking in most of the state's streams, artificial impoundments, farm ponds and natural lakes.

According to the latest polls, the channel cat is the species most preferred by the state's half million fishing enthusiasts. During 1986, licensed anglers harvested a total of 4.1 million catfish.

The channel catfish is nothing short of a biologist's dream. It is hardy, fast growing, reproduces well within the hatchery environment and best of all is a born tackle buster. Catfish are also famous for their love of warm water, and during the steamy, dog days of summer, the species fills the void by providing first-rate angling action when other gamefish have gone dormant.

In Iowa the channel cat is also of great economic importance, especially to the commercial fishermen who ply the murky waters of the Mississippi for profit. However, to realize the fish's true commercial potential, one must travel to the Deep South where they raise 'cats like a midwestern farmer raises hogs. Of course, the best way to come by a catfish dinner is to catch one yourself. And whether smoked, baked or flash fried in a well-seasoned camp skillet — the channel catfish is synonymous with fine dining.



Here are three recipes to help you enjoy your catch.

B-B-Q Catfish

12 catfish fillets
melted butter
⅛ tsp. paprika
½ cup salad oil
¼ cup white vinegar
¼ cup ketchup
2 T sugar
¼ tsp. salt
¼ tsp. pepper

Brush fillets with butter; put on grill 3 to 4 inches from coals. Combine other ingredients and mix well. Coat fillets and cook for 5 minutes on each side or until done. Brush often with sauce.

Bob Mullen, conservation officer,
Tama, Iowa
(from the *Warden's Cookbook)*

Smoked Catfish

Several catfish fillets
1 cup Dorothy Lynch salad dressing
1 tsp. liquid smoke
1 tsp. soy sauce
1 tsp. Worchestershire sauce
1 tsp. garlic salt
1 tsp. celery salt
½ tsp. pepper
dash Mrs. Dash

Mix all ingredients well and set aside. Place fillets in glass or plastic tray in layers. Spread seasoning mix over each layer. Let sit 3 to 4 hours in refrigerator. To use, remove fillets and rub them with cooking oil and grill or smoke. Fish is done when it turns light brown and flakes easily.

Bill Bailey,
Lexington, Nebraska

Baked Catfish

Several catfish fillets
salt
Schilling lemon & pepper
butter
paprika

Place catfish fillets in buttered oven dish. Use salt and lemon & pepper to taste. Dust tops of fillets with paprika. Cover and bake at 350° until done (approximately 20 to 25 minutes if using fillets from 1½- to 2½-pound fish). That's all there is to it!

Carol Washburn,
Clear Lake, Iowa

Just the Place

Story by Dean Hall and Eric Haakenson
Illustrations by Tom Roberts

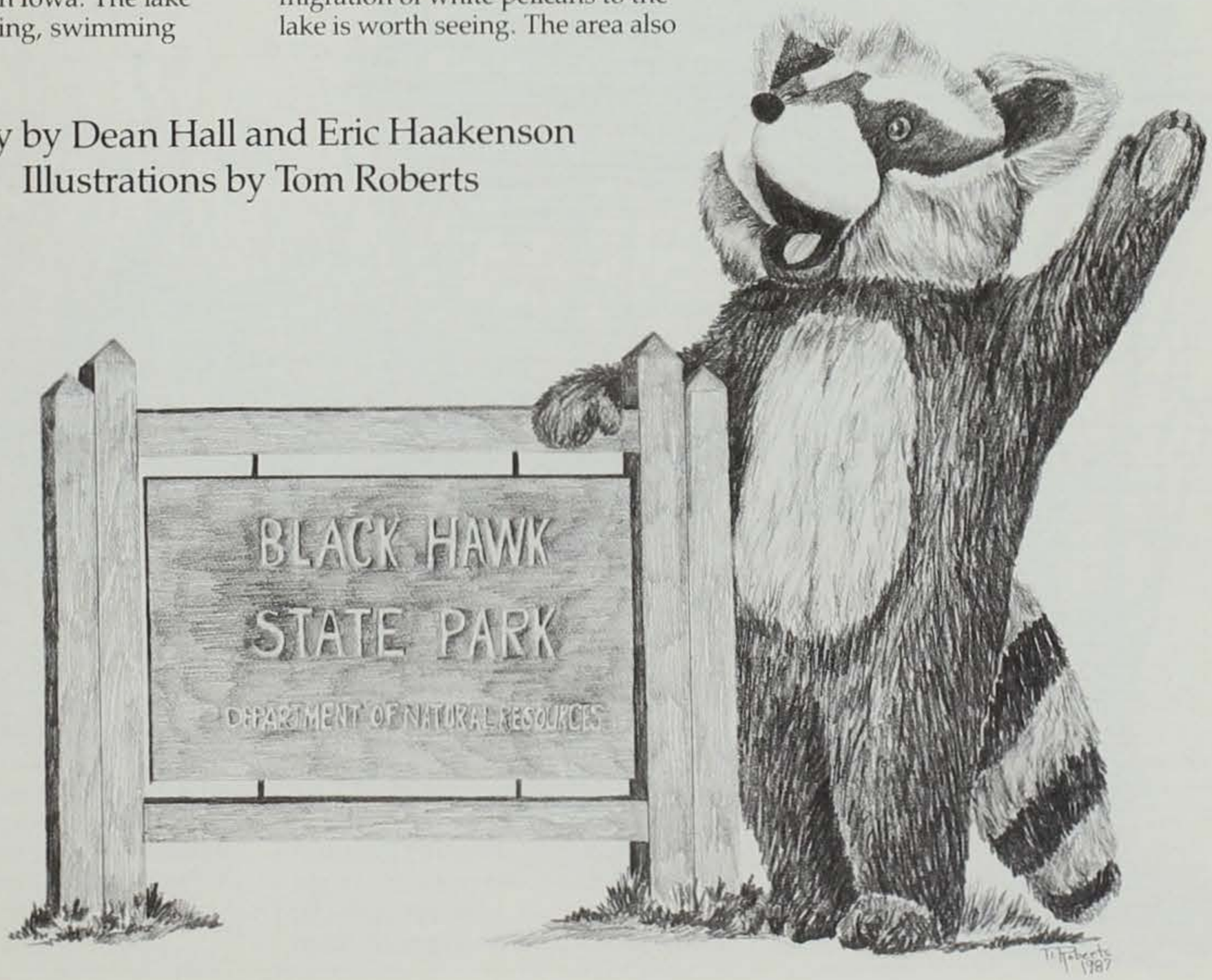
Camping is a fun and inexpensive activity that can be enjoyed by the whole family. When planning your family campout, whether for a weekend, or a week-long journey, several things should be considered before you leave.

If you're planning to camp, choosing just the right park to suit your family needs is important. Things to consider include modern or primitive facilities, the availability of swimming areas, playgrounds for the children, interpretive programs, nature trails, fishing and most importantly, peace and quiet away from the hectic everyday routine. Black Hawk State Park offers all these things and may be just the place for your next camping trip.

Black Hawk is located on the edge of Lake View, Iowa, two miles south of U.S. Highway 71. The park's 275 acres of land borders 975-acre Black Hawk Lake, the southern-most major glacier lake in Iowa. The lake offers boating, fishing, swimming and waterskiing during the summer, and snowmobiling and ice fishing during the winter. A number of beautiful picnic areas are located throughout the park with shelters available by reservation or on a first-come, first-served basis. All picnic areas are accessible by car or boat, so a fishing or picnic outing is easy.

Campers will find 30 Acres Campground a quiet retreat for a weekend or a week-long outing. The campground has 176 modern sites and 68 electrical hook-ups. Facilities include a modern shower building and rest rooms. A nine-hole frisbee golf course, volleyball court, horseshoe pits, tetherball, swimming beach and a large playground are some of the recreational facilities Black Hawk State Park offers within walking distance of the campground.

Black Hawk State Park has a variety of habitat for fish and wildlife. Its marsh is alive with waterfowl in the spring and fall, and the annual migration of white pelicans to the lake is worth seeing. The area also



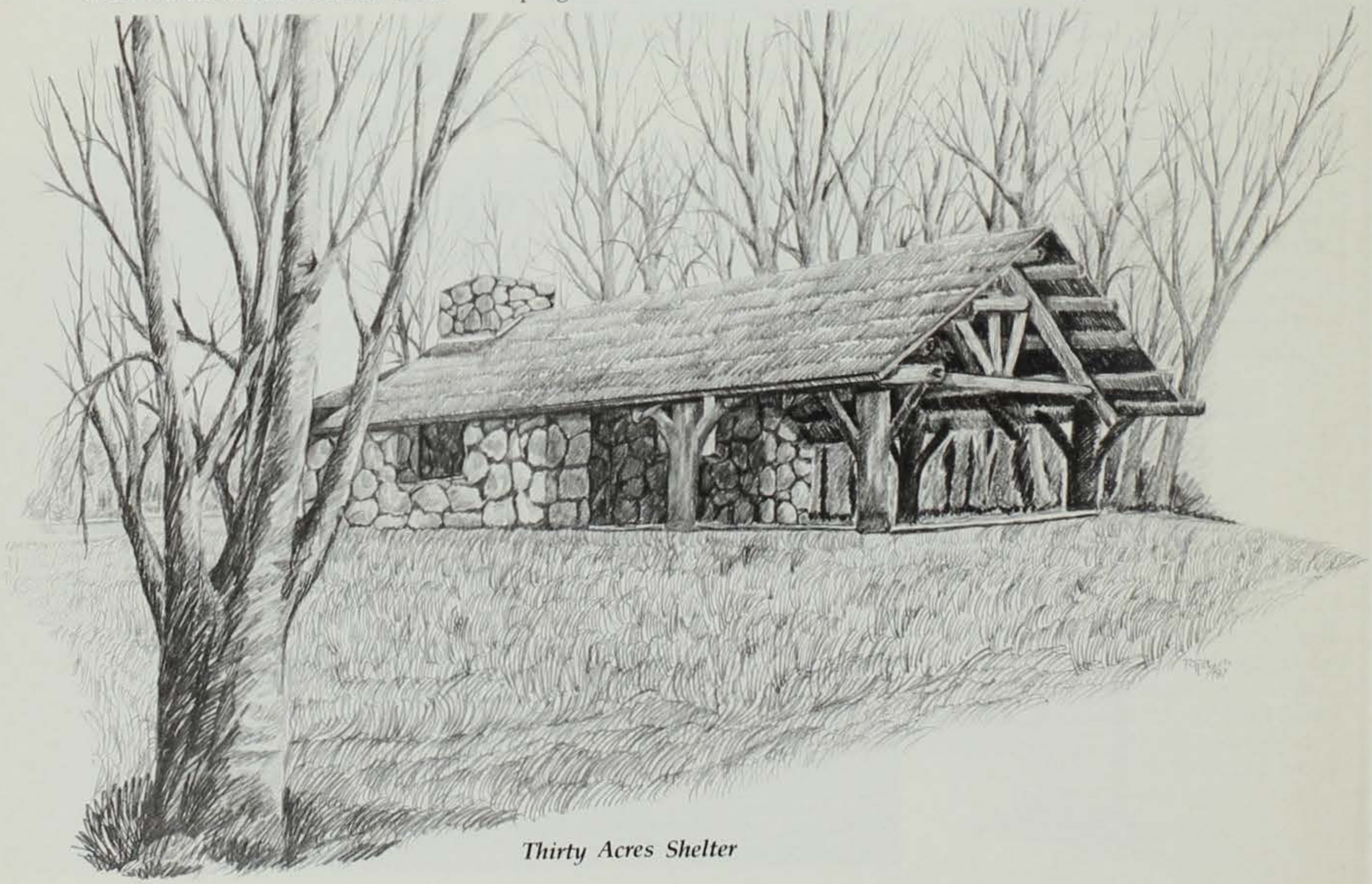
abounds with warblers of all kinds in early spring, along with herons, bitterns and other marsh birds present throughout the summer. Black Hawk Lake is a fisherman's delight with tiger muskies, walleyes, bass, perch, catfish and crappies. In addition, Arrowhead Lake, adjacent to Black Hawk, offers fishermen a variety of sunfish, bass and bullheads. The wildflower enthusiast will be pleased with the assortment of wildflowers present within the park.

Black Hawk Lake has gone through four name changes. It was called Boyer Lake by the French when Iowa was part of the French territory prior to the Louisiana Purchase. Before 1850, the name was changed to Walled Lake because of the formation of boulders around the edges. The original stone "wall" is gone now, removed by the first settlers to build foundations for their homes and barns. Walled Lake was changed to Wall Lake, and thus it remained until the 1930s. This name was confusing to travelers because there were two other lakes in Iowa called Wall Lake. In 1932, a number of people asked for a name change. Since the lake was in Sac County, they asked that the lake be named after the famous Chief of the Sac tribe, Black Hawk.

In 1935, Black Hawk Lake was dedicated as a state park, and between 1936 and 1938, the park benefitted from the work of the Civilian Conservation Corps (C.C.C.). There were several C.C.C. work camps established in Lake View. One of the most significant C.C.C. work projects was the rip-rapping of the lake shore with native field stone. Other building projects included the stone piers in the lake's Town Bay, the park ranger residence and shop, park entrance portals and the Witches Tower — a rather unusual structure which stands on a hill as a sentry post over the wildlife area. A popular Black Hawk spot is Denison Beach, which offers a beautiful C.C.C.-built stone shelter for picnicking, and a sand beach.

A well-established interpretive program has activities scheduled through the summer months, including movies every Saturday night in the campground theater, cookouts and sports activities for campers, and guided hikes through the Bernard "Stubb" Severson Memorial Interpretive Trail. The Severson Memorial Trail is located one quarter mile south of the park ranger's home. It is a three-mile wood chip and gravel trail winding through the Black Hawk Wildlife Area. There are 40 numbered markers along the trail corresponding to different trees, bushes and shrubs in the trail brochure. The Witches Tower and a C.C.C. stone bench are located on the trail as a reminder of the park's early days. Work is underway on an interpretive center located in the wildlife area along the Severson Memorial Trail.

Summer months are busy at Black Hawk, with the camping season beginning Memorial Day weekend. The annual State Park Week, June 12-18, will be full of activities including hayrides, guided tours of the nature trail, a fish fry for campers, frisbee golf tournament, sand

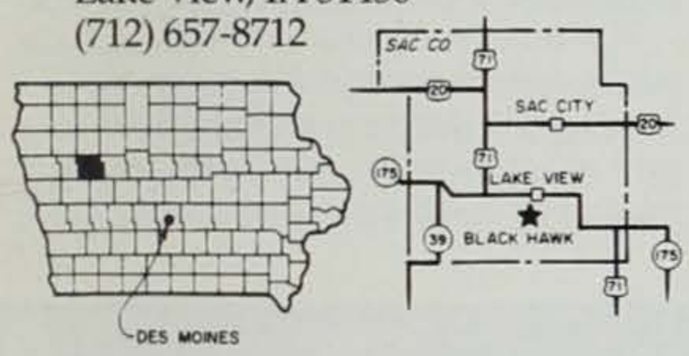


Thirty Acres Shelter

sculpture contest and prize drawings. In addition to State Park Week, Black Hawk visitors will enjoy the Lake View Water Carnival in July and Carp Days in August.

So, next time you're planning a family outing, keep Black Hawk State Park in mind. You won't be without things to do and see, and you can surely count on a relaxing atmosphere. Black Hawk State Park and its employees welcome you!

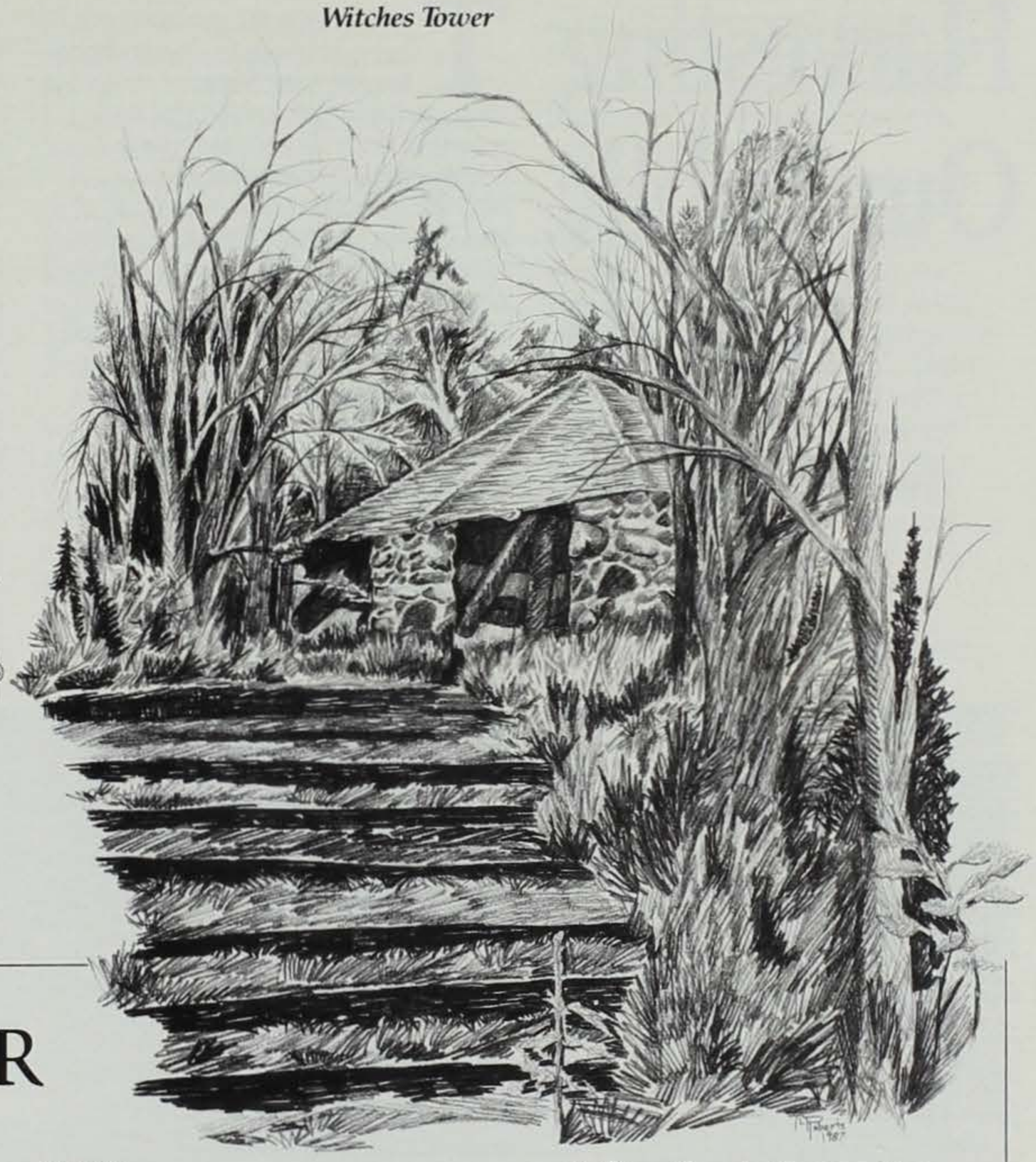
Park address:
Black Hawk State Park
P.O. Box 7
Lake View, IA 51450
(712) 657-8712



Dean Hall is the park ranger at Black Hawk State Park.

Eric Haakenson is the park attendant at Black Hawk State Park.

Witches Tower



CALENDAR

JUNE 4-26

Wildlife Photography Show and Sale. Photography exhibit and sale at DeSoto National Wildlife Refuge Visitor Center, Harrison County, featuring wildlife and nature photographers. For more information, contact K. L. Drews or Bruce Barkley at (712) 642-2772, or write Midwest Interpretive Association, Rte. 1, Box 114, Missouri Valley, Iowa 51555.

JULY 2, 3 AND 4

Wapsipinicon Rendezvous. Buckskinners, craft demonstrations, pistol shoot, knife throw and craft demonstrations at Wapsipinicon State Park, Jones County. For more information, contact Mike Brewer, Wapsipinicon State Park, Rte. 2, Anamosa, Iowa 52205, (319) 462-2761.

JULY 4

4th of July Celebration. Fireworks at Lake of Three Fires (Taylor County), Red Haw (Lucas County) and Lake Manawa (Pottawattamie County) State Parks. For more information, contact Ron Jones, Lake of Three Fires, Rte. 4, Box 14, Bedford, Iowa 50833, (712) 523-2700; Bob Schierbaum, Red Haw, Rte. 1, Box 212, Chariton, Iowa 50049, (515) 774-5632; or Don DeLong, Lake Manawa State Park, South Shore Drive, Council Bluffs, Iowa 51501, (712) 336-0220.

JULY 4

Heritage Day Celebration. Hickory Grove Park in Story County is the location for a 4th of July celebration featuring buckskinners, blacksmithing, crafts, bluegrass music and buffalo chip throwing. Fee charged. For more information, contact Cele Burnett, Story County Conservation Board, McFarland Park, Rte. 1, Ames, Iowa 50010, (515) 232-2516.

JULY 16 AND 17

Black Hawk Water Carnival. Carnival, street parade, water float, fireworks and 10k run at Black Hawk State Park, Sac County. For more information, contact Dean Hall, Black Hawk State Park, P.O. Box 7, Lake View, Iowa 51450, (712) 657-8712.

JULY 23 AND 24

Bellevue State Park Buckskinners Rendezvous. Buckskinners, black powder shoots, knife throws, period crafts and bluegrass music at Bellevue State Park, Jackson County. For more information, contact Don Carrier, Bellevue State Park, Rte. 3, Box 184, Bellevue, Iowa 52031, (319) 872-4919.

Harvesting Our Public Lands

Story by Jim Bulman
Photos by Ron Johnson

The fact that the state of Iowa harvests from its state-owned forests is probably of no great importance to you unless you have returned lately to your favorite forested spot to find it clearcut, or realized that the walnut tree you used to picnic under long ago is now spread over the walls of some corporate office.

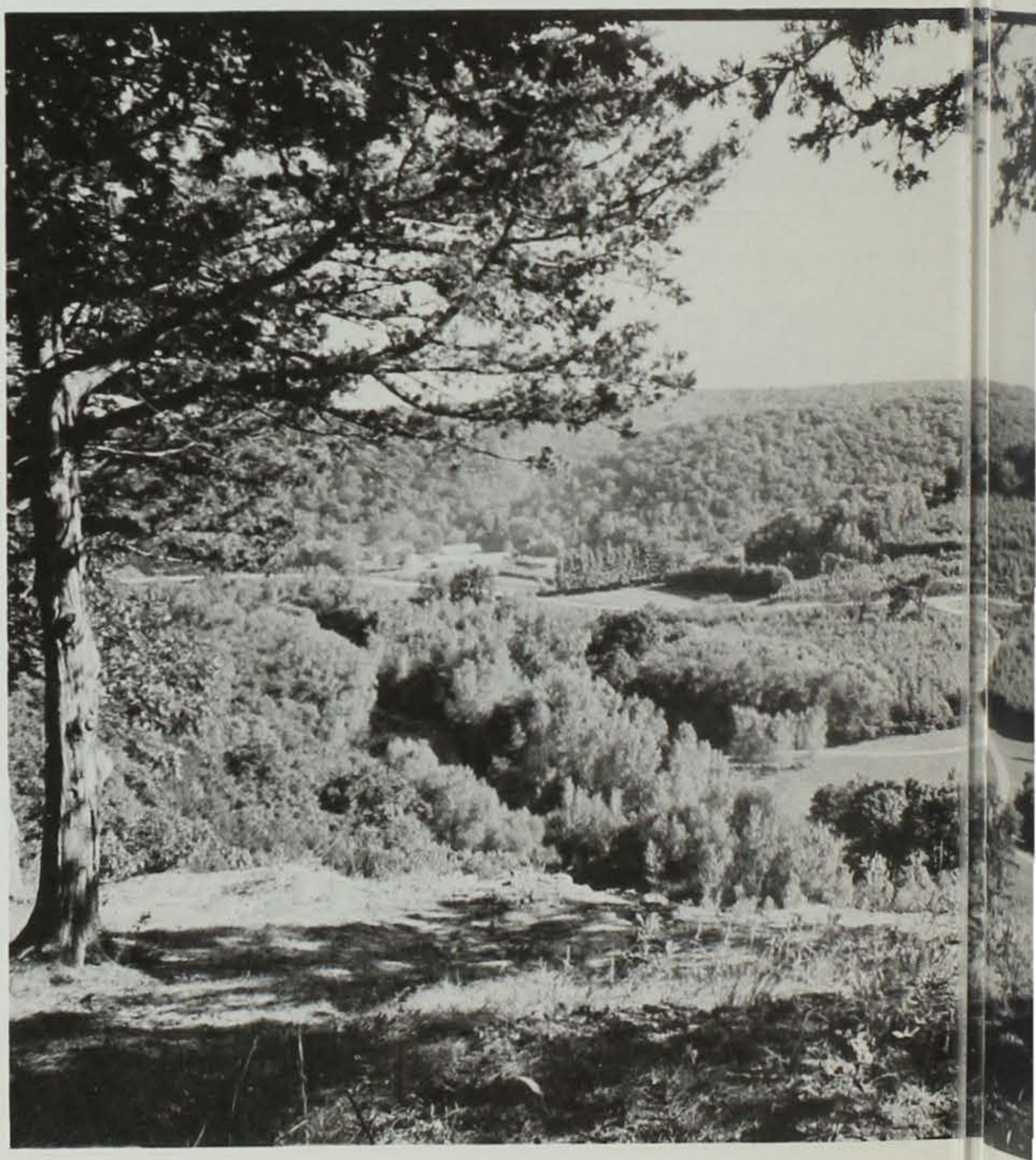
The fact is, even though we do sell walnut trees and do make clearcuts, neither of these things would likely happen, given Iowa's style of forest management. An important ingredient in our forest management is a strong sensitivity to all forest benefits including those intangible ones like memories and scenery.

The state owns about 50,000 acres of forested land on state forests, state parks, wildlife areas and other institutions. Additional forest land is under the control of federal agencies. No one knows for sure exactly how many forest acres are in public ownership, because of the difficulty of surveying it and the purchases.

Management is always undertaken in the hope of producing results. We manage public forests with the same hope. Some of the results we look for are improved wildlife habitat, a healthy forest, beautiful scenery and protection of the soil, threatened and endangered plants and animals, and geological or cultural features.

The timber resources on state parks, forests and wildlife areas are managed in different ways which give weight to main management goals. For example, in state parks

The major purpose in the state acquiring public areas is for recreation and resource protection. However, it is logical and efficient to manage for additional benefits if they are available and do not interfere with the main management objectives. Harvesting timber from public lands is one such benefit.



consideration will be given to the longest practical rotations, to uneven-aged management, to loss prevention and to practices which improve the forest resource in ways that compliment the reasons parks are established.

In wildlife areas, forest management practices which enhance the wildlife resource will be emphasized, including maintenance of den trees, cavity management, habitat diversity and mast production.

State forests management practices will favor timber production and demonstrate good general woodland management.

One other important management goal is production of income. Operating budgets of agencies like DNR's Forestry and Parks Divisions include both income and appropriated money. For example, about half the Forestry Division's budget is income from the sale of nursery stock, crop leases and timber sales.

Forest timber in Iowa is generally of high quality and commands a good price. Timber sales in 1987 generated more than $182,000. More than half of the total dollars came from the sale of 65 walnut trees taken from Pammel State Park.

Much of the wood, particularly walnut is made into veneer or used as the core stock on which the veneer is laid. A good portion of the timber goes to Iowa's large pallet trade. And evergreens harvested from forest areas are used for posts on the same forest or other state areas. Some of the pine are finding a place in the landscape market. Actual harvest on public lands is done by private timber buyers, bonded to do business in Iowa.

Clearcutting as a method of harvesting forests has been the subject of controversy. As can be imagined, it has some advantages to persons doing the harvest. It is also a useful way to accomplish some desired results.

Clearcutting is one of three techniques for managing even-aged forests. The other techniques are seed tree and shelter wood. The seed tree method, where scattered trees are left in the hope that they will reseed the area, is seldom used in Iowa because of the likelihood that they will be blown over.

In the shelter wood technique, 40 to 60 percent of the crown cover of the area is removed in a first cut. The remainder is left several years for reseeding. When the desired stocking of new seedlings is achieved, the remainder of the stand is cut. There is less danger of windthrow with a shelter wood technique. Disadvantages may include damage to the residual trees during the first logging, damage to the new trees during the second cut or increased damage to the site because of two entries rather than one.

Clearcutting as practiced on state lands and on some private lands consists of areas of five to seven acres on which all stems greater than one inch in diameter at four and half feet above the ground are cut or killed. Ideally, the cut should be timed to coincide with a heavy seed crop. Regeneration should already be present or the area should be planted before or after the harvest. When there is a need to replant, the state usually does so with red oak, white oak and walnut seedlings.

Good practice demands an irregular cutting boundary to increase the

DNR PHOTO

Area to be clear-cut on one of Iowa's state parks (below).

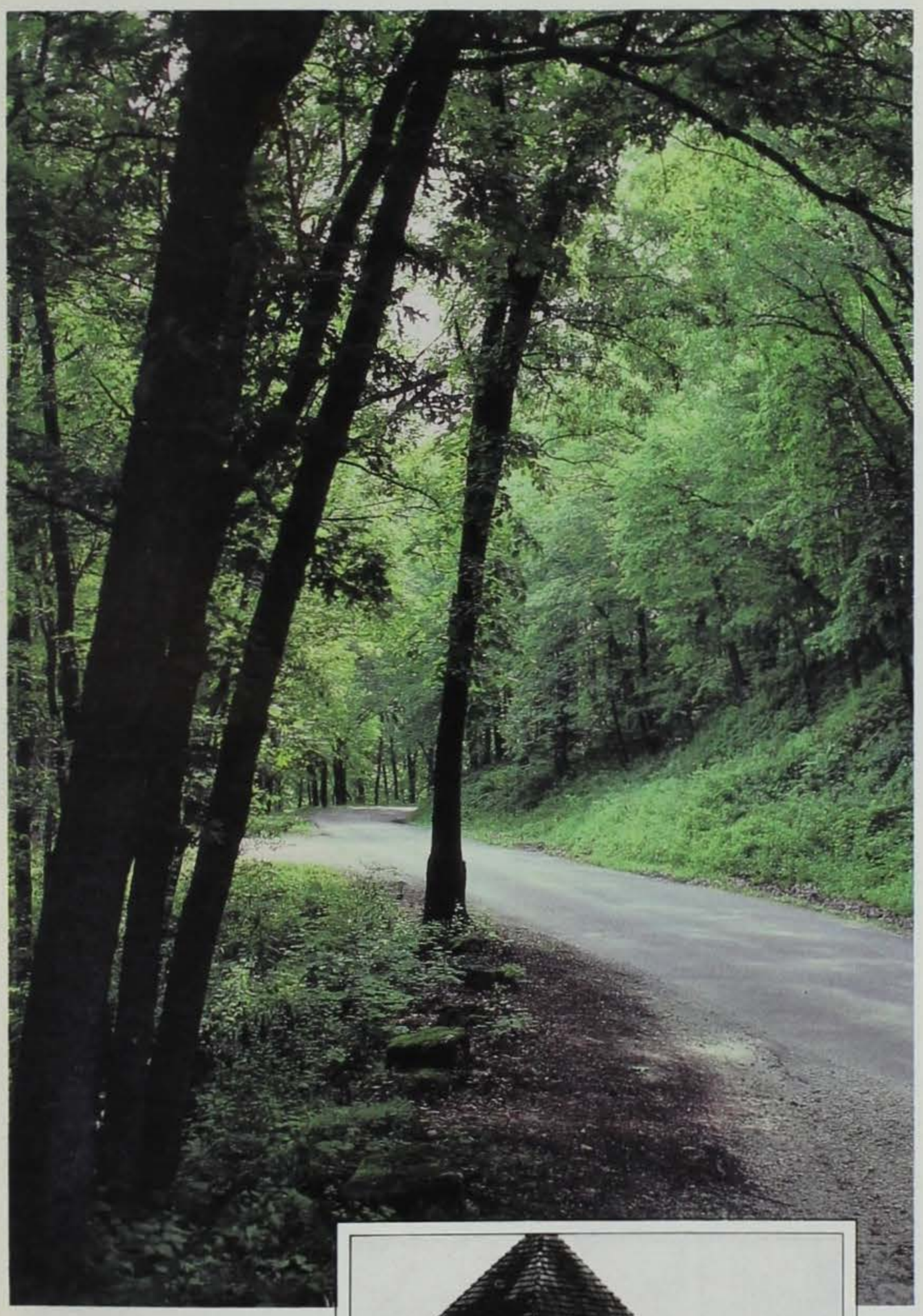
amount of edge value to wildlife, and to soften the visual effect.

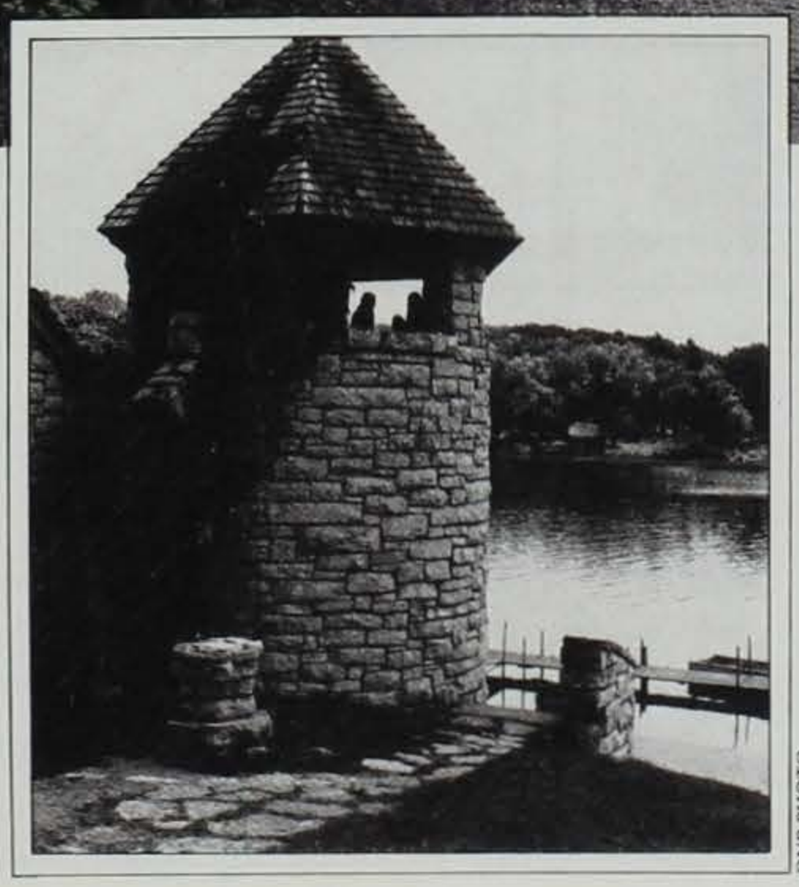
Clearcutting is practiced from a desire to regenerate tree species such as oak and walnut, which are not tolerant of shading. These oak and walnut forests are also desirable as providers of wildlife food and habitat.

Clearcutting drastically changes the vegetative character of an area. The herbaceous and brushy vegetation on the site for the first few years and the succession of taller plants which follows does not benefit all wildlife but is generally considered beneficial to most species.

It is obvious that governments do not acquire assets for the purpose of producing revenue. But when they control assets for the purpose of meeting public benefits such as recreation and resource protection it is logical and efficient to manage for any additional benefits that are available. Well-managed harvest on Iowa's public lands, whether it be clearcutting or the removal of a single walnut tree, is profitable to all.

Jim Bulman is chief of the forest management bureau located in Des Moines.





DNR PHOTO

BACKBONE

A Special Place To Spend A Week

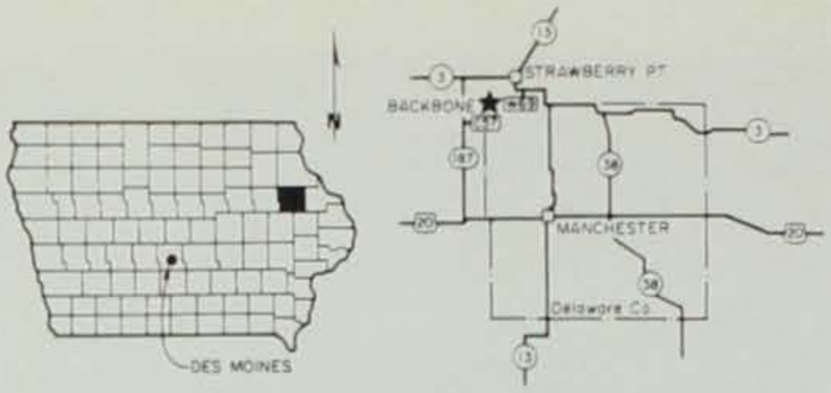
Story by Terry Gaines
Photos by Ron Johnson

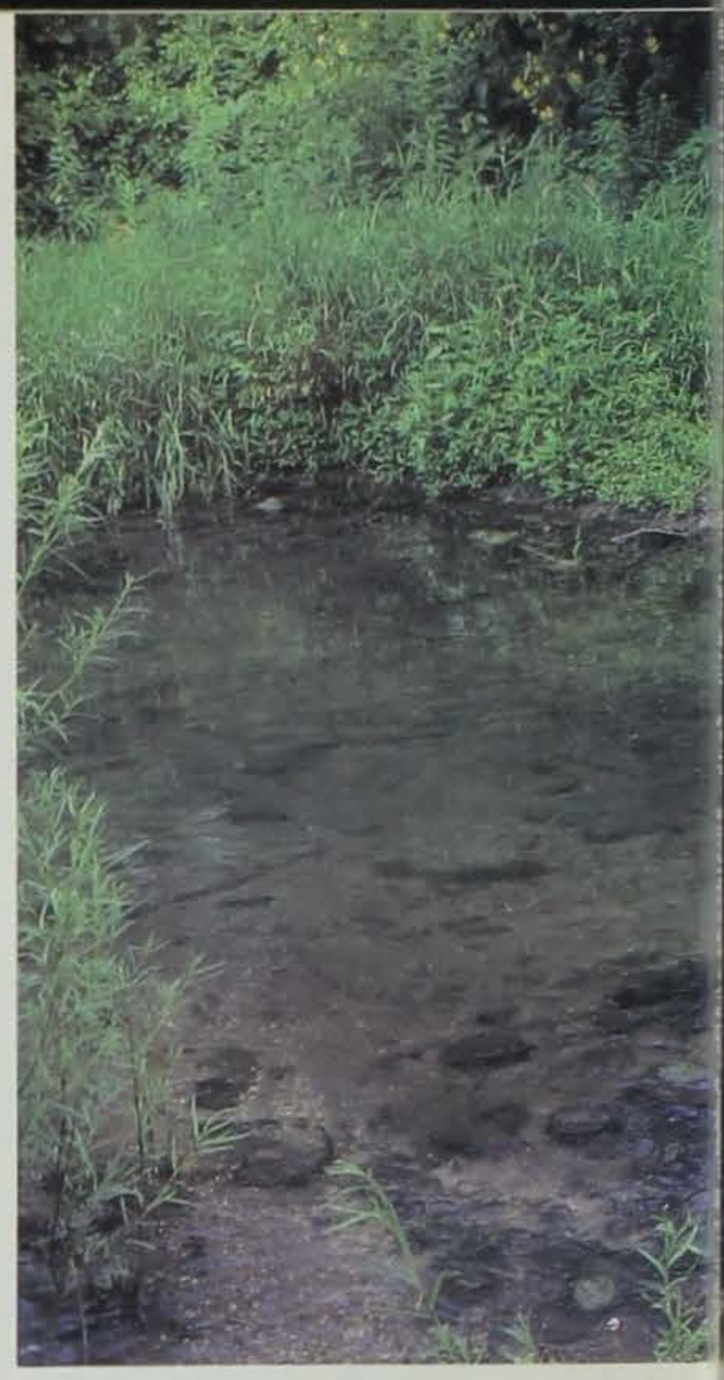
Looking for a place to relax and enjoy the best of Iowa's natural heritage? Spend a week in Iowa's first state park, Backbone. This northeast Iowa gem has been dazzling visitors with its scenic and recreational diversity for almost 70 years. Backbone boasts 1,780 acres of sheer beauty which includes lush forest, tumbling streams, limestone rock formations, a lake and a variety of plants and animals. Spend a week and you will find yourself returning again and again.

WATER ACTIVITIES

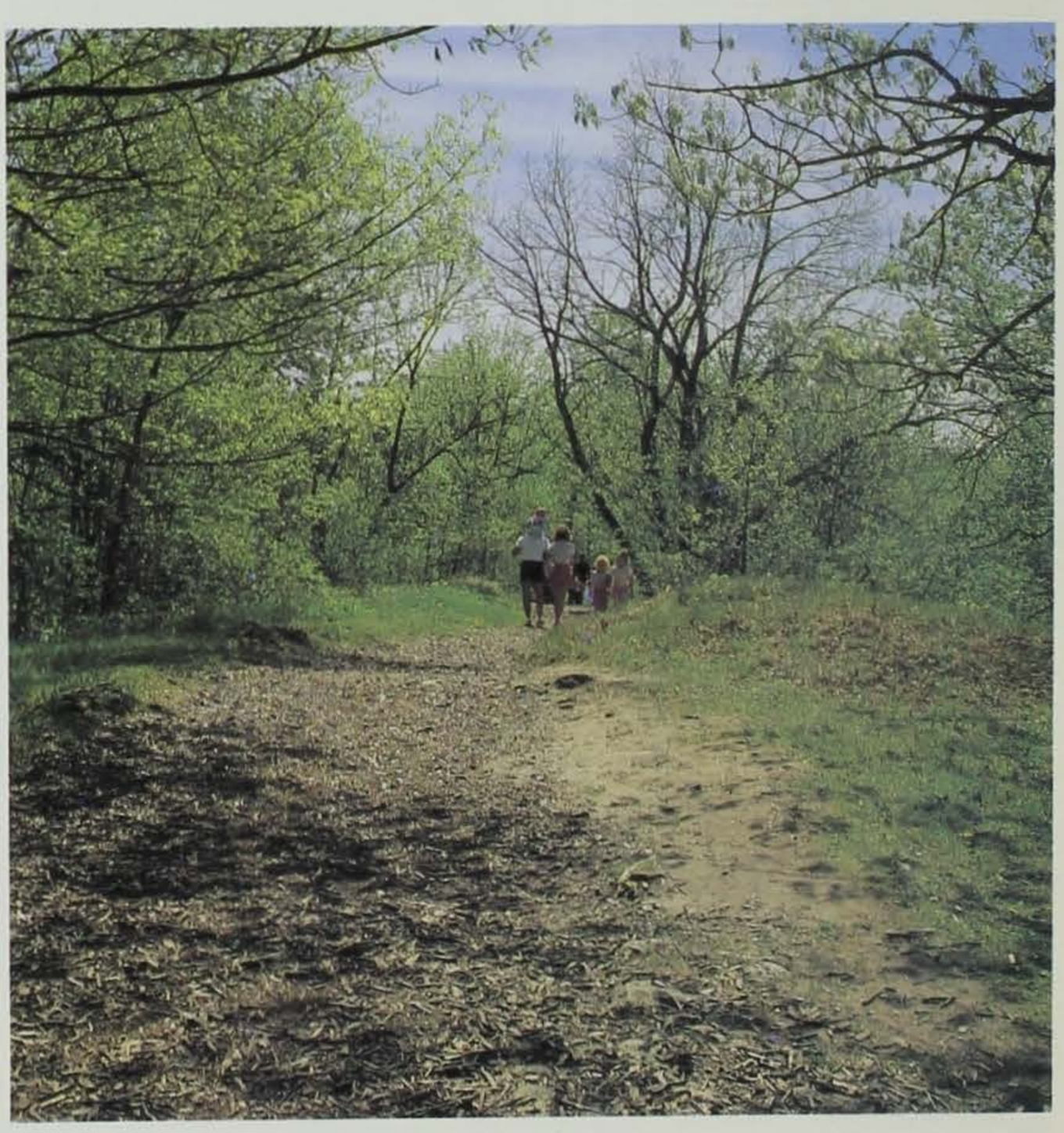
There are many ways to enjoy Backbone's streams, freshwater springs and lake. Dip your pole in one of the crystal clear streams as it glides through magnificent shades of green and stark limestone formations. Watch the sun dance on the water surface or look deeper to see the rainbow and brown trout dart about, finally succumbing to your hook. To the angler's delight, the streams are stocked three times a week with 12-inch trout during the summer months. A variety of other fish may also be pulled from Backbone's lake. For those seeking solitude and the prizes yielded by deeper water, electric trolling motors may be used on the lake.

If those trout seem to elude you and you find yourself wondering just what you are trying to catch, stop by the fish exhibit and get a glimpse. A long-time favorite of young and old, the exhibit chronicles the trout from fingerlings to brood stock in open outdoor tanks. It is sure to delight the whole family.





Backbone's 1,780 acres provides the visitor with ample opportunities for family picnicking, trout fishing and for hiking on one of its many scenic trails.



On a hot, sunny day venture over to another of nature's marvels. Richmond Springs bubbles gently beneath rocky overhangs sprinkled with wildflowers. Its cool, clear water remains at a constant temperature of 48 degrees. This unique feature is also part of Backbone's dynamic beauty.

Soak in the sun on the sandy beach and cool off with a swim in the lake. The supervised swimming area and beach house are located at the south end of the park. Let your artistic side free and build a sand castle.

Canoes, paddleboats and other watercraft may be rented at reasonable rates from the concessionaire in the park. Take one and journey out to the quiet reaches of the lake. Look up at the cliffs or surprise a deer coming down for a late afternoon drink before it slips back into the thick foliage.

LAND ACTIVITIES

There are more than 12 miles of scenic hiking trails in the park. Perhaps the most famous of these is the Backbone Trail. Walk along the twisting rock path which juts 100 feet from the floor of the Maquoketa River valley. The trail resembles a giant vertebrate and gives Backbone its name. Stand, as many have before you, and enjoy the magnificent panorama. Continue on the trail as it joins peaceful woodlands, where in the spring dainty wildflowers abound.

Backbone Trail is only one of the many spectacular trails in the park. Other trails wind along the Maquoketa River beneath cliffs, or travel gently through meadows and forests. A self-guided nature trail is located near the primitive campground. Pamphlets are provided to help you identify and more fully enjoy the variety of plants and animal life.

Savor a picnic lunch of your favorite summer foods in nature's dining room. Backbone offers numerous, well-maintained picnic areas. For those family get-togethers, you may want to reserve one of Backbone's seven open shelters, some complete with fireplaces. They are favorite spots for sharing today's laughter and for forming tomorrow's memories.

For the daring and adventurous, Backbone's cliffs can be rappelled. This is a skill that requires training and expertise. Visitors wishing to rappel must report to the park office for suitable locations and registration.

For those preferring the more tranquil days of yesteryear, buggy rides are available on a limited basis for a small fee.

Backbone is a park rich with history. Many of the buildings you will see were constructed by the Civilian Conservation Corps in the 1930s. The effort to maintain and restore these buildings continues and is supported by your purchase of the park user permit.

WHERE TO STAY

Backbone offers 16 cabins and 214 campsites. The modern cabins are nestled among trees on the limestone bluffs overlooking the lake. They are available for $100 per week from May 14 to October 8. Each cabin can accommodate four people. You only need to bring food, linens and toiletries. Cabins are very popular so you will want to make reservations early with the park ranger.

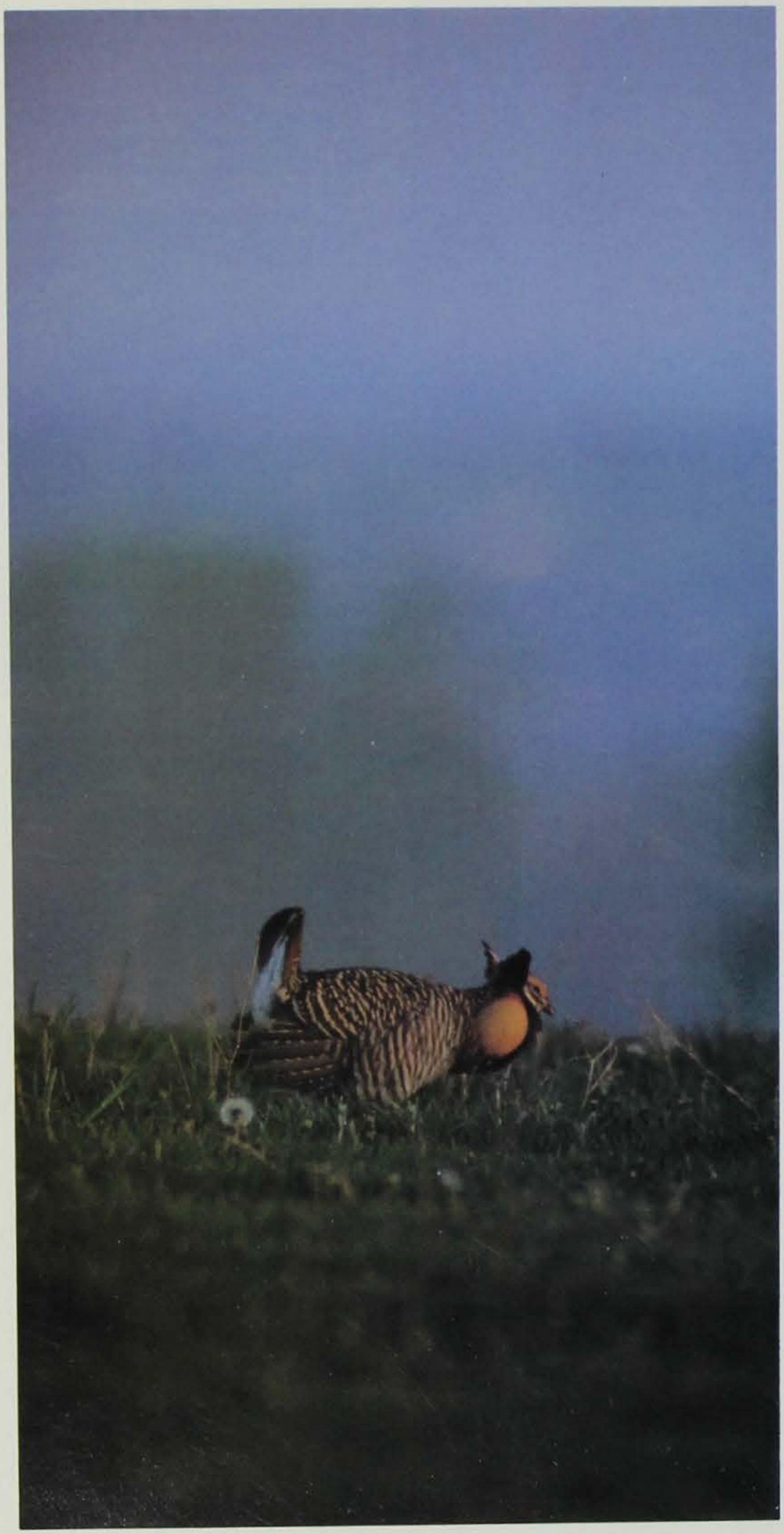
A modern campground is located at the south end of the park near the lake. Mature trees provide the setting for this beautiful, wooded campground complete with shower facilities and electrical hookups. On various weekends throughout the summer, park visitors gather at the outdoor auditorium in the campground for a variety of park programs. Cost for camping is $6 per night with an additional charge of $2 for electrical campsites.

The nonmodern campground is located at the west end of the park. It is a smaller, peaceful campground among towering trees. Cost for camping here is $4 per night.

Spend a week at Backbone State Park. The suggestions above are only a few of the ways to enjoy Iowa's oldest state park. Backbone offers beauty and fun all year round. We look forward to seeing you.

Park address:
Backbone State Park
Dundee, IA 52038
(319)924-2527

Terry Gaines is the park attendant at Backbone State Park.



THE BO

Story by Willie J. Suchy and Melvin Moe

Photos by Ron Johnson

At dawn's first light, the bird cautiously emerged from the release box, perhaps a bit perplexed about the three birds standing so still in front of him. Although the three birds he could see were quiet, he could hear others of his kind making sounds somewhere nearby. Driven by the desire to join them, the bird hopped up on the box for a look around. After a couple of minutes surveying these strange new surroundings, all he could see were other birds walking from their boxes, the three "stiffs" who still had not moved, a large, dull-colored box and a fence with a large round thing attached to one post. The sounds seemed to be coming from the round thing. He hopped down from his box and slowly walked a zig-zag route toward the post, occasionally stopping to grab a bit of something to eat. As he got closer, he could tell that although there was sound coming from the post, there were not any birds making it. Puzzled perhaps, he wandered off with some of the other birds from the boxes and headed for an area of tall grassy cover...

The bird in the described scene is a male prairie chicken. The sounds are recordings of booming calls made by males on breeding grounds called leks. These recordings and the three decoys are part of a "soft release" technique that tries to simulate the conditions of the breeding grounds from which the birds were captured only days before. Hopefully, this artificial lek and the taped booming vocalizations will encourage them to stay near the release site rather than strike out for their home state, Kansas. This release is part of the Department of Natural Resources' latest attempt to reintroduce the greater prairie chicken to Iowa.

Historically, prairie chickens were native to most of Iowa's prairies.

BOOMING GROUND

Peak numbers probably occurred in the late 1800s when row crops were first introduced into the state. As agriculture became more intense in the 1900s, the number of birds began to decline. The last known breeding colony disappeared from southern Iowa in the mid-1950s, although migrants are still reported occasionally in western Iowa. Reintroduction attempts were first made in the Loess Hills of western Iowa in the early 1980s. Although birds are still sighted in the area, a viable population has not been established.

The release described earlier took place in 1987 in southern Iowa. The rolling, grassy hills there are probably better suited to prairie chickens than the steeply sloped Loess Hills. But the biggest plus has been the addition of large acreages of permanent grasslands to the area under the federal government's Conservation Reserve Program (CRP). This mix of grasslands and croplands may provide the best potential prairie chicken habitat that Iowa has had in many years. Studies in Missouri indicate that 25 to 30 percent of an area must be in permanent grassland that is properly managed. For prairie chickens, this means that the height of the residual vegetation must be 15 to 20 inches tall the following spring. Most CRP and some lightly grazed pastures would provide this type of cover.

Forty prairie chickens were released in 1987 and 120 more were released in 1988. The birds were obtained from Kansas in a three-state swap of wildlife in which Iowa provided turkeys to Michigan, while Michigan provided geese to Kansas. Using the "soft release" technique may help keep these birds in areas of better quality habitat, allowing them to quickly adapt to the new area and hopefully suffer fewer losses to predators.

During the releases this year, some of the booming heard was from live birds, not just recordings. At least one bird from the 1987 release was seen booming at the release site. Also, three banded males, assumed to have come from the 1987 release, were seen on a booming ground nine miles south of the release site near Hatfield, Missouri. These latter birds were accompanied by an unbanded male whose origin was unknown. At least one hen was observed on this booming ground.

Hopefully, the booming of prairie chickens will become a common sound across the pasturelands of southern Iowa and northern Missouri. If it does, this region will have regained another fascinating part of its wildlife heritage.

Willie J. Suchy is a wildlife research biologist located in Chariton.

Melvin Moe is a wildlife management biologist located in Mt. Ayr.

The booming calls of the prairie chicken can once again be heard in southern Iowa. By playing recorded booming calls in the mornings and late afternoons, these prairie chickens are attracted to this artificial lek in southern Iowa. If these birds reproduce, Iowa may once again have a prairie chicken population.

SOLAR ENERGY

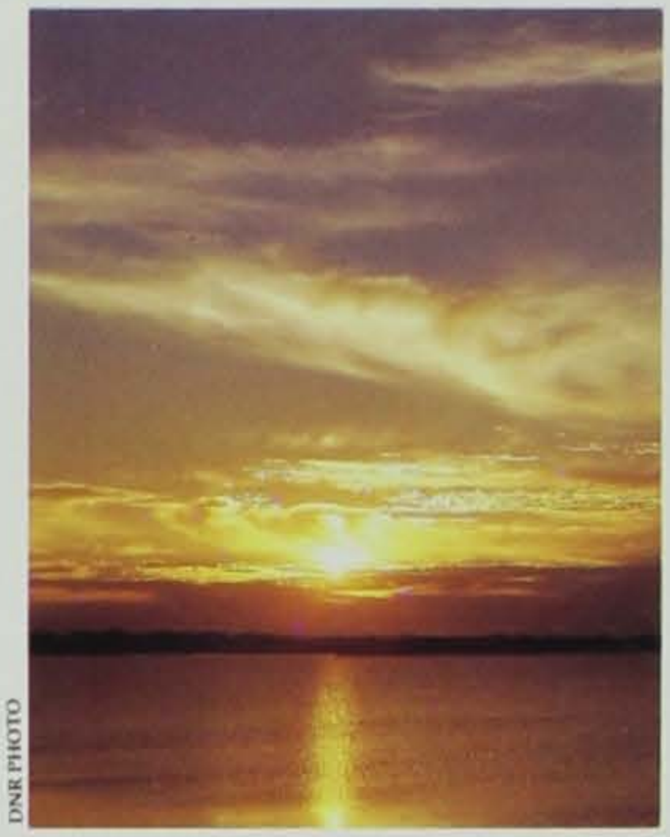
Here Yesterday, Gone Today, Back Tomorrow?

by Randy Martin

Solar energy was a popular subject 10 years ago when the federal government was pumping millions of dollars in research and demonstrations. Solar energy was a popular subject because it was about the only energy resource that the public could rally behind in response to oil and gas shortages and embargoes.

Most everyone who remembers the 1973 Arab oil embargo and the crisis in 1981 will agree that another shortage and price flare-up is eminent in the next 10 years. Today's low prices and abundant sources have dealt a near death blow to the fledgling solar industry which had its beginnings in the mid-1970s. The general public has lost a measure of motivation for such alternatives. Prudent business decisions based on short-term paybacks (three to five years) often prevent individuals and businesses from implementing alternative energy strategies which will, in time, be commonplace.

Modern day applications of solar energy in Iowa can be found in early agricultural buildings. Farmers in the early 1900s constructed many of their livestock buildings with the axis running east and west. The openings for livestock were on the south side. They were using the basic principles of passive solar energy. These early farmers relied on wood or corncobs to add heat to their buildings or keep their livestock waterers from freezing. Then came innovative devices designed to ease the farmer's workload. Propane furnaces and electric livestock water heaters came along. Propane and electricity were inexpensive so the farmer latched onto these energy sources. Farmers became less concerned about proper orientation of buildings — they could just put in a larger furnace.



DNR PHOTO

The life of abundant and inexpensive energy continued until the Arab oil embargo of 1973 jolted us back to reality. We began to realize that foreign dependence for energy was catastrophic and fossil fuels were not an infinite source of energy. Prices increased dramatically. We became more energy conscious. We added insulation to our homes and began to look for alternative energy sources.

Reacting to the Arab oil embargo, the federal government created the Federal Energy Administration in the same year. The name was later changed to the U.S. Energy Research and Development Administration (ERDA), and eventually the U.S. Department of Energy (DOE). The following year, the Iowa Legislature created the Iowa Energy Policy Council (EPC), which became the Energy Bureau of the Iowa Department of Natural Resources in 1986.

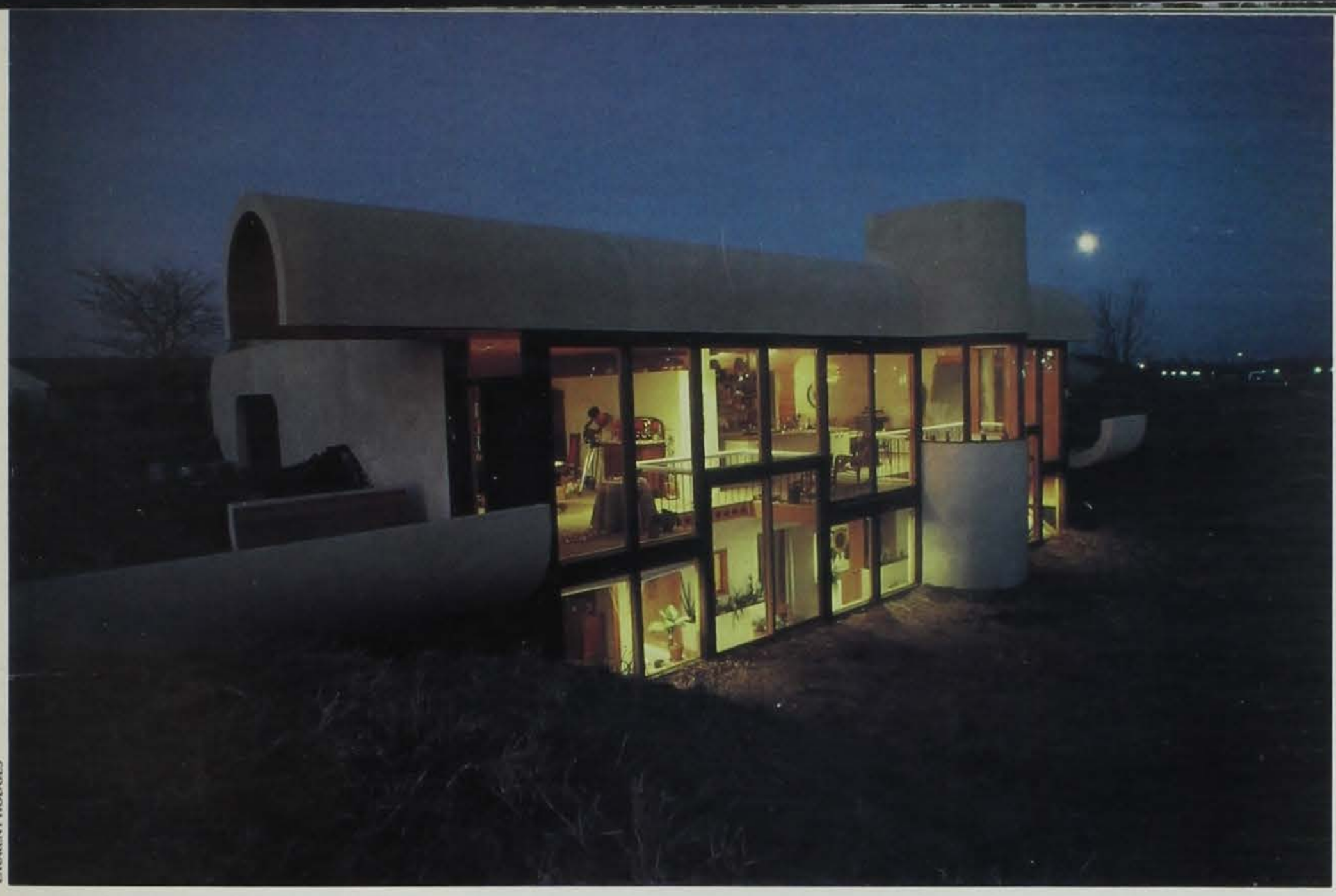
Iowa, along with the rest of the nation, began its early infatuation with solar energy with what is called "active solar technology." These systems rely on moving parts such as pumps, valves and fans, and are packaged systems that are attached to a building to heat air or water.

Scattergood School in West Branch, Iowa, was one of 32 early "active" solar demonstration projects around the nation funded by ERDA in 1976. The school received $85,000 to install a 2,500-square-foot active solar air collector system on their new school building. The system used 65 tons of washed river rock for heat storage. The system is still in operation today.

In 1977, the Longfellow School in Marion, Iowa, received more than $220,000 in federal dollars to install a 5,000-square-foot active solar liquid space and water heating system. The system was supposed to provide 74 percent of the school's heating requirements, but was poorly designed and experienced tremendous efficiency losses in the transferring of solar heat to storage. The system was dismantled in 1984 and the parts sold to enterprising individuals.

The Iowa Legislature appropriated $200,000 in 1977 for the installation of a high temperature concentrating collector system at the Capitol Complex. The 2,000-square-foot system was designed to deliver steam to the complex's heating and absorption chilling system. Plans were made to install an additional 2,000 square feet of collectors in 1979. The experimental system was never able to maintain its calibration to focus the sun's energy and was dismantled and sold in 1986.

Individual homeowners at this time were experimenting with do-it-



LAURENT HODGES

The Laurent Hodges' home in Ames, designed by Dave Block, is Iowa's first passive solar house.

yourself solar space heaters. They found plans in popular magazines and purchased materials to build the collectors themselves. These "room heaters" were quite primitive but often worked well enough to heat an average room while the sun was shining. Many, however, were discovered to lose as much energy as they gained through reverse thermosiphoning when the sun went down.

A group of Iowans interested in the promotion of solar energy met in March 1978 at Des Moines Area Community College and started the Iowa Solar Energy Association. Membership grew to a high of 271 in 1981. The organization has since changed its name to the Iowa Association for Energy Efficiency to more accurately reflect its current direction. It currently has around 50 members.

In March 1978 Iowa Governor Robert D. Ray signed a proclamation declaring Sun Day, May 3, 1978, an official day in the state. His proclamation called solar energy "the most abundant and least polluting energy source immediately adaptable to meet Iowa's energy needs." At the signing of the proclamation, the governor was given a "Solar Energy Today" t-shirt and treated with cookies baked in a solar oven.

In 1978 the federal government established solar tax credits. Homeowners purchasing solar energy equipment could receive a tax credit of 40 percent of the cost, up to $4,000 off their federal income tax. These credits gave a tremendous boost to the fledgling solar industry. The first companies were reputable businesses dedicated to the advancement of solar energy. But, it wasn't long until solar companies began sprouting up everywhere. Unfortunately for this new industry, many entrepreneurs with little or no background in the fundamentals of solar energy began selling systems based on unfounded claims such as, "This 4x8 collector will cut your heating bill in half." It didn't seem to matter what the heating load of the house was.

Active solar systems were plagued with a myriad of problems. Early systems often had large, elaborate storage systems. Pumps and fans would break down, liquid systems would air lock, and plumbing would leak. These early systems were simply not designed to handle the severe temperature swings that caused excessive expansion and contraction.

The experiences and frustrations encountered in these early "active" years caused the solar advocate to take a step back and apply a more simplistic and reliable method for capturing the sun's energy. Thus the concepts of passive solar design became popular. It made sense to design new buildings to act as the solar "collector" and install additional mass, such as concrete, to absorb the solar heat collected during the day and release the heat to the space at night.

Iowa's first passive solar house was built in Ames in 1979. The house was designed by Dave Block, an architecture professor at Iowa State University, for the Laurent Hodges family. Hodges is a physics professor at Iowa State and an energy specialist with the Energy Extension Service. The whole south face of the home is

RANDY MARTIN

DNR PHOTO

Project Passive home (top) in Emmetsburg, was designed by Dave Block and included several types of passive solar systems. At Scattergood School (above) in West Branch, the air active solar system is still being used today.

designed to collect solar heat, and a thermal storage wall or trombe wall which had glass in front of a 12-inch concrete wall. The thermal storage wall would absorb the solar energy during the day and release it into the house at night. Four of the homes were built by area community college building trade programs. The design has performed very well and served to dramatically demonstrate the concepts of passive solar energy. However, the modern design received a cool reception in the Iowa home market.

Iowa's first "envelope home" was built near Conrad in 1979. The home was designed by Lee Porter Butler of California. The envelope concept uses a sun space along the entire south facade of the house. It has a double back wall which allows solar heated air to circulate (thermosiphon) from the sun space through the attic of the home, down between the back walls, through a crawl space under the house, and back to the sun space. It is essentially a house within a house. The system appears to work well in Iowa, but there has been controversy over how it works. Some recent studies have shown that shutting off the air circulation has actually increased the performance. The extra cost of building two shells is its major drawback.

During this time, it was becoming evident that passive solar worked best when combined with energy conservation. Kirkwood Community College in Cedar Rapids received a grant from Mid-America Solar Energy Complex to design and build a passive solar home in the college vocational-technical construction program. Its appearance was quite conventional but used double 2x4 construction in combination with moderate south glass. The "superinsulated" home was born in Iowa.

During the early 1980s the superinsulated concept began taking over. The days of the exotic passive solar home with 500 square feet or more of south windows were passing. People wanted more conventional-looking homes. Superinsulated homes could be built in any style and could incorporate moderate amounts of south glass without having to install large amounts of mass. Homes with 12- and up to 16-inch walls were being

glass, but a movable insulation system was designed to insulate the glass at night. The home has been thoroughly monitored and has lived up to its expectation of 80 percent of its heat supplied by the passive solar system.

People were also experimenting with earth-sheltered (underground) homes during this time. These homes appeared to work well when oriented toward the south, but the applications were limited as people felt uncomfortable with windows on only one side of the house and zoning regulations limited their construction in suburban neighborhoods.

In 1979 the Iowa Solar Office commissioned the design of Iowa Project Passive, a passive design for a home to be built by Iowa's building trade curriculums at area community colleges. The home was designed by Dave Block and included several types of passive solar systems: a direct gain system that allowed sunlight to enter directly into the home, a sunspace, or separate room

built. Some of the builders were guaranteeing annual heating costs of less than $100, and in one case, $50 per year. The homes have performed as expected.

These passive solar, earth-sheltered, envelope and superinsulated homes were being built by a small percentage of Iowa builders on the leading edge of technology. The conventional builder in Iowa during this time was still building homes like they always had, with 2x4 construction, R-30 in the attics and no basement insulation. Many are still being built that way today.

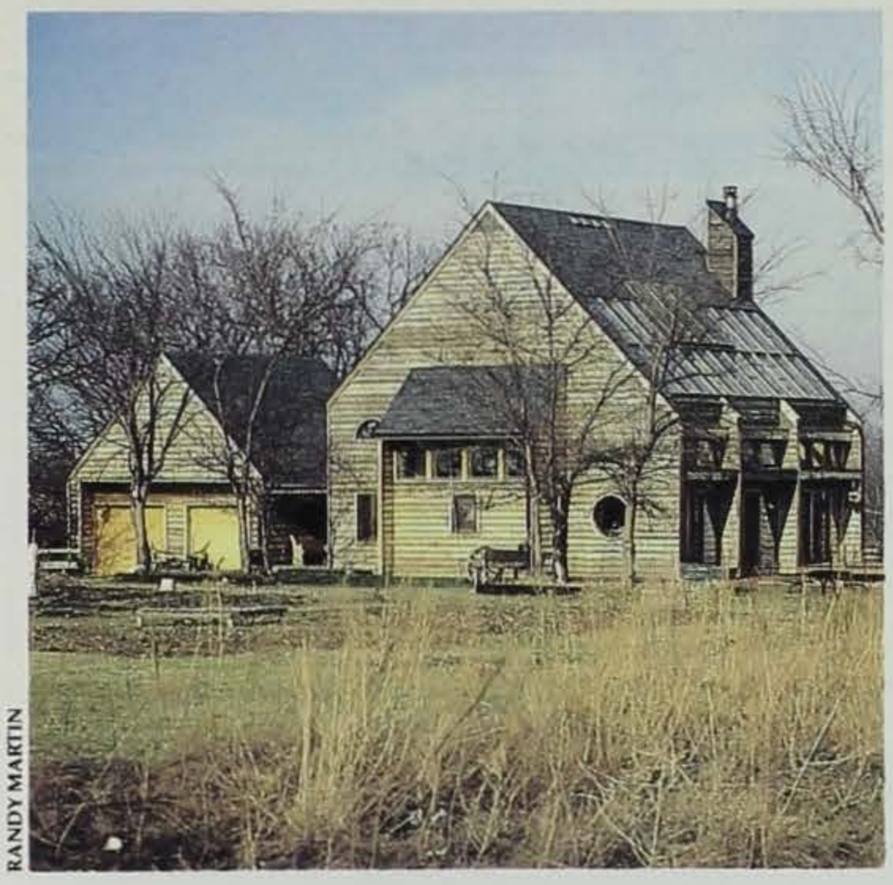
Due to stable and relatively low energy prices, today's energy efficient builder has backed off some from the "superinsulated" concepts of the mid-1980s. Today the norm in the energy efficient community is to built tight, well-insulated homes with moderate south glass. Instead of the $50-$100 per year costs, we're seeing $150-$200. Instead of double 2x4 construction, we're seeing 2x6 construction. If more passive solar is desired than just concentrating the windows on the south, a sun space is added.

We have run the gamut. We have experimented with the exotic, the glamorous and returned to the simple. Energy efficient construction based on simple conservation techniques is proving to be the most cost effective, practical and marketable.

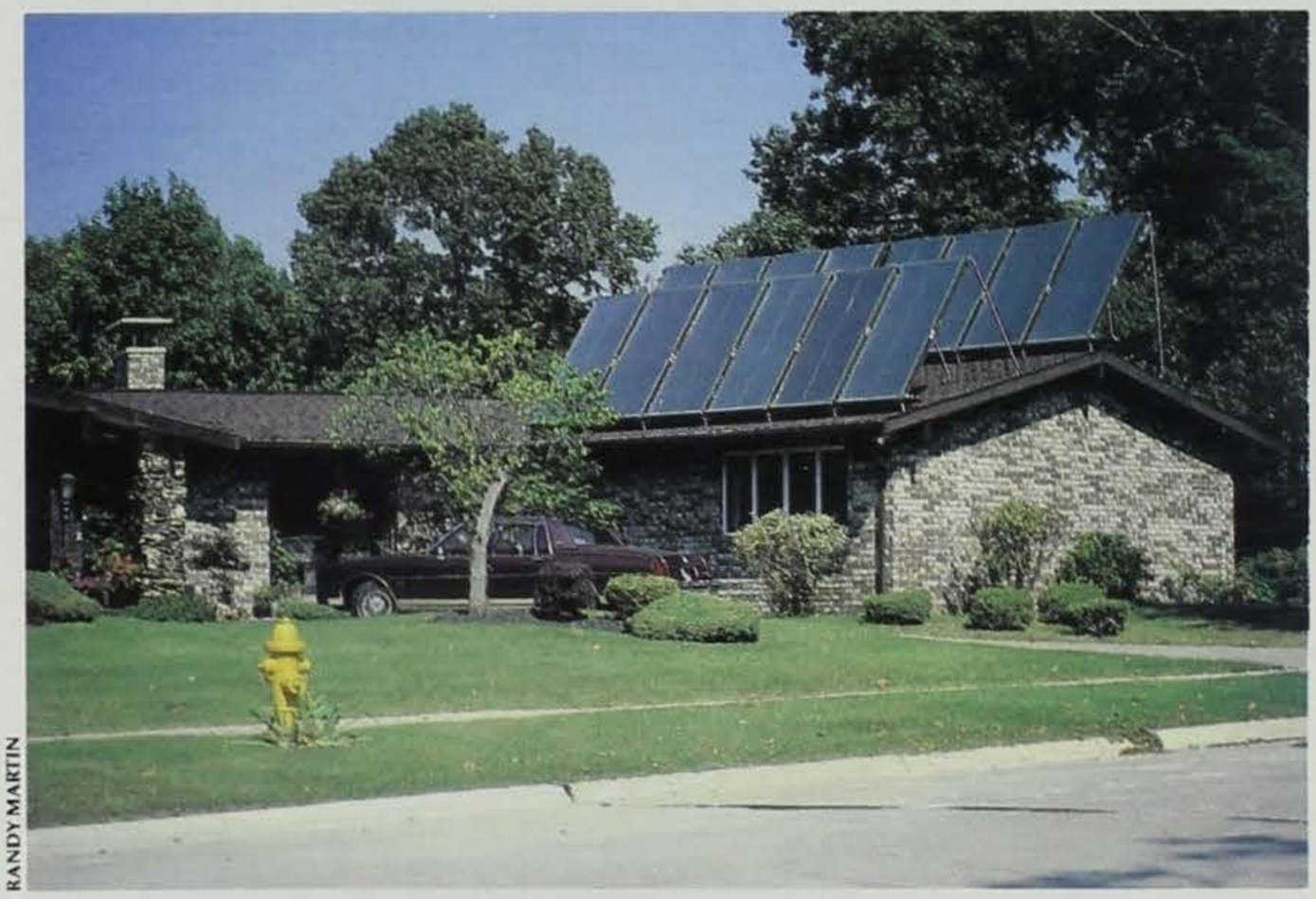
In 1985 the federal residential solar tax credit ended. The few active solar companies remaining, soon closed their doors or changed their market direction. Today there are only a few companies in Iowa still involved in active solar energy. Most of their business involves servicing systems.

Solar energy has had its problems in Iowa, as in the nation. Many of the large active solar systems have been scrapped, but the experiences learned will allow the solar advocates and technologists to approach the next energy crisis with more pragmatism.

Passive solar systems have faired better. There have been a few problems with oversizing south glass without designing in enough mass so the house overheats during the day and cools off fast at night. But, overall, passive solar is much simpler than active solar and has few mechanical problems. We have proved that with proper design, passive solar works very well in Iowa.



RANDY MARTIN



RANDY MARTIN

The Ralph Goebel home in Ames (left), designed by Don Swanson, is an example of an "envelope" home. Bob Pecka's home (below) in Fort Dodge is an example of a liquid active solar system.

What about the future? Passive solar will continue to be used regularly. With higher energy prices, active solar energy systems may again re-emerge. The real future of solar energy probably lies with photovoltaics or solar cells which generate electricity directly from sunlight. Their cost is still too high for general use, but increases in production efficiencies will soon make them applicable for a growing number of electrical devices and applications.

All our experiments in the past, successes and failures, have shown us that solar energy is still a very viable energy resource for Iowa. Stable prices for conventional energy currently cloud the future for solar energy. But many of us know and realize that future price shocks will clear our vision.

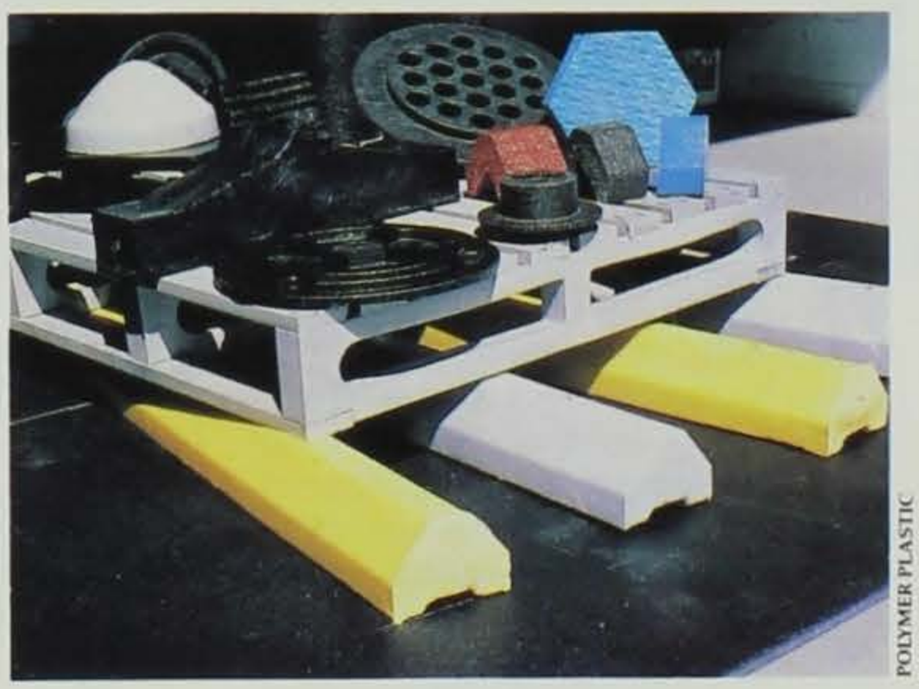
Randy Martin is an energy specialist located in Des Moines.

Milk Jugs Become Park Benches

by Wendy Zohrer

Reprint from the **Iowa Energy Bulletin, May-June 1988**

POLYMER PLASTIC



POLYMER PLASTIC

Consumer waste material is used to produce park benches (above), plus car stops, pallets and other molded products (right).

Check that park bench, picnic table or the car stop in the parking lot of your favorite park. Look closely, they may be made from recycled plastic. The milk jugs being collected in the communities of Hamilton, Wright and Webster Counties may be reshaped into yellow car stops. The county conservation boards in these counties were instrumental in coordinating this project with Plastic Recycling, Inc., in Iowa Falls.

The purpose of the project is to create an awareness of landfill problems as well as to educate the general public on landfilling alternatives. Jean Eells, Hamilton County's environmental education coordinator, explains, "We have had overwhelming support from schools, local trash services, grocery stores, media and 4-H clubs. Everyone is pitching in to make this project a success in all eight communities."

Plastic Recycling, Inc., will be donating a park bench to the county which collects the most milk jugs. Five cents is paid for every pound brought to the recycling company. Seven jugs equal one pound of plastic. The local trash services are providing dumpsters in every community; the 4-H clubs are monitoring the dumpsters in Hamilton County; and the grocery stores bale the jugs two or three times a week for shipment to Iowa Falls.

The participating schools will use the money from the recycling project for conservation-related projects. Hilltop Elementary School in Webster City plans to purchase pine trees for every student. The rest of the money will be used for environmental education programs in their county.

Gregory Mattson, vice-president of Plastic Recycling, Inc., would like to see similar projects across the state. This three-county project is proving to be quite successful. Mattson commented that it is not necessary to be a county with a large population base in order to participate in plastic recycling. "The key to the recycling effort is not the technology but what you are able to sell with that technology," said Mattson. There must be a market for the new product or these recycling companies and product manufacturers will die quickly.

Interest in the recycled plastic products is on the increase. The initial investment for plastic products may cost more but the long-term life cycle cost is much lower. Much of the plastic or post-consumer waste being used is shipped from Chicago, Illinois. It was costing $1000 per week to landfill this plastic in Illinois. Now it is being shipped to the recycling company at no cost to the city. Chicago is benefitting by extending the landfill's life as well as recycling this non-renewable petroleum resource, while Iowa's economy benefits through additional jobs.

Plastic Recycling, Inc., was created by Floyd Hammer. He had been importing plastic particle board from England because a similar product was not manufactured anywhere in the U.S. This particle board is used in hog confinement setups in the United States. Hammer researched the technology and then developed the process now used in the recycling plant.

The plastic recycling contest ended on March 31, 1988. Over the three-month period, a total of 83,720 milk jugs were collected in Webster, Wright and Hamilton Counties. Hamilton County (population 17,500) won the recycled plastic park bench with a total of 55,440 milk jugs. Nearly 74 percent of Hamilton County's milk jugs were collected by the schools. The first-grade class at Northeast Hamilton Community School District averaged 60 milk jugs per pupil.

The contest is now over but the recycling project may continue. The Iowa Grocer's Association will be discussing future action in assisting in plastic recycling projects. They volunteered to bale the milk jugs for the county conservation boards during the contest. Civil groups, 4-H clubs and other youth organizations as well as the schools want to continue with plastic recycling promotion. If you are interested in initiating this project in your community, contact Jean Eells, Hamilton County Conservation Board, R.R. 1, Webster City, Iowa 50595, or call (515) 832-1994.

Wendy Zohrer is an information specialist located in Des Moines.

WENDY ZOHRER

Diane Holt's kindergarten class at Northeast Elementary School helped with counting, bagging and hauling of milk jugs.

Survey Shows Consumers Like Plastic, Support Recycling

Consumer use of plastic food containers has increased dramatically during the last year. The third annual consumer survey conducted for Packaging Magazine by NFO Research, Inc., in Chicago, Illinois, polled 1,000 consumers with 38 questions about packaging likes and dislikes.

The most significant facts revealed by this year's survey concern the awareness of plastics in food marketing. Plastic containers are increasingly preferred because they are convenient and easy to use. In fact, it appears that most people who have not bought products in plastic containers would have, had they been aware that the products were available in plastic.

Consumers are also expressing a growing interest in recycling:

- In 1987, 82 percent of those polled expressed a willingness to separate recyclable materials. In 1986, only 76 percent of those polled were willing to separate recyclable materials.
- The percentage of those unwilling to recycle dropped noticeably, from 22.8 percent in 1986 to 16.4 percent in 1987.

Consumer appreciation of plastic packaging has increased:

- The percentage of consumers buying mayonnaise in a plastic bottle tripled, from more than 4 percent in 1986 to just over 12 percent in 1987.
- Nearly 66 percent of consumers purchased ketchup in a plastic bottle, up from less than 57 percent in 1986.
- Consumer use of jellies in plastic bottles increased substantially, from 17 percent in 1986 to 24 percent in 1987.
- Eleven percent of consumers tried salad dressings in plastic bottles in 1987, a product included in the survey for the first time this year.

Of those consumers who have tried foods in plastic bottles:

- 91 percent liked ketchup in a plastic bottle.
- 84 percent liked salad dressing in a plastic bottle.
- 76 percent liked mayonnaise in a plastic bottle.
- 69 percent liked jelly in a plastic bottle.

Consumer households polled in the survey were selected based on U.S. Census data on geographic regions, market size within each region, age of female householder, annual household income and household size. The tabulated results were based on a return of more than 72 percent.

Reprint from the **Plastic Bottle Reporter, Fall 1987**

CONSERVATION UPDATE

STREAM CHANNELIZATION

by Robert Middendorf,
fisheries management biologist

Since the late 1800s, close to 3,000 miles of Iowa's rivers and streams are estimated to have disappeared due to channelization, where the natural bends or meanders are eliminated and a stream is forced to flow through a straight line ditch. At many of these projects, removal of bends has reduced stream lengths by more than 50 percent. Advocates of channelization call it "stream channel improvement." These interests range from facilitating commercial navigation on the larger border rivers, to private landowners increasing acreage for crop production on small streams.

However, to those who are involved with the interests of fish and wildlife, channelization is viewed as stream destruction. Each time a project is completed, a portion of the stream's length is lost forever. Therefore, if the length is reduced by 50 percent, it stands to reason that there will be a 50 percent reduction in fish if all conditions are the same. However, the channelized area also provides a greatly degraded habitat for production and survival of fish, other aquatic organisms and wildlife.

A stream in its natural course, with its bends or meanders, different levels of water flow velocities, and bank vegetative cover has varied habitat. It will have deeper pools of water, along with snags, log jams and other debris that offers food production and cover for large fish. On the inside of bends are shallow slack water areas that provide good habitat for spawning and rearing of small fish. Invertebrate animals, vital elements in the food chain of fish, are dependent upon a stable substrate and protection from current that is available in a meandering stream.

In a channelized stream most of the diverse habitat is lost. These ditches seldom have the specialized conditions fish species require for successful spawning, hatching and survival of young fish. The cover and holding areas for larger fish does not exist. Usually the stream velocity is greater and no variation in water depth is to be found.

Habitat destruction to a stream's fishery due to channelization is best exemplified through research conducted by Vaughn Paragamian, fisheries biologist for the department. In sampling fish communities in the North Skunk River, Paragamian found a channelized reach supported less than 30 pounds of fish per acre. Two natural stream reaches, however, supported on the average 355 pounds of fish per acre; 155 pounds consisted of channel catfish, flathead catfish and walleye.

Many species of mammals and birds live in or near streams. To some it is only a source of water, to others it is a vital habitat for which a ditch concept will not substitute. Raccoon, mink, muskrats, herons and several species of ducks require streams for food, cover and den or nesting sites. In many rural areas of the state, the only tree and shrub growths to be found are adjacent to rivers or streams. This woody bank cover is removed with the channelization; thus, it also eliminates cover, food and den sites for deer, squirrels and other game.

The loss of stream habitat is a never-ending battle. Several factors are now helping to stem the rate of channelization in Iowa. These factors are the economy and high costs, more and more people becoming concerned about the alterations, and administrative rules pertaining to channel changes promulgated by the Department of Natural Resources.

The rules require certain criteria be followed for a permit approval to construct, operate and maintain a channel change. For streams draining more than 100 square miles, a reduction of no more than 10 percent in length will be allowed. In rural areas with streams draining 10 to 100 square miles, a reduction of no more than 25 percent in original length will be allowed through any contiguous parcel of applicant's property. In urban areas with streams that drain 2 to 100 square miles, a reduction of no more than 25 percent is allowed. Some streams have been designated as "protected streams," and channel changes are not allowed on these stream reaches, ex-

cept with a variance issued for specific exceptions.

Stream channelization is a significant blow to the fish and wildlife using the stream. So severe is the impact that the scars of the channelization are not healed in anyone's lifetime.

To lessen fish and wildlife impacts, mitigative conditions are attached to each permitted channel change. In most cases, these require the applicant to establish a grassy area along the new channel and to install rock riffles in the stream. These actions do replace some lost habitat, but they do not begin to replace the diverse habitat that the meandering stream once possessed.

FREE FISHING DAYS, JUNE 11 AND 12, 1988

For the second consecutive year, sport fishing license requirements have been waived for residents of Iowa on Saturday and Sunday, June 11 and 12, 1988. This two-day period of free fishing has been set aside by the Department of Natural Resources in recognition of both National and State Fishing Week, June 6-12, 1988.

All laws regarding size limits, bag limits, etc., must be followed. Beginning anglers should familiarize themselves with the laws pertaining to sport fishing by obtaining a copy of the Iowa 1988 fishing regulations brochure available from all fishing license outlets such as county recorders, sporting goods stores and DNR offices.

STONE STATE PARK CERTIFIED AS URBAN WILDLIFE SANCTUARY

Stone State Park in Woodbury County has been certified as an Urban Wildlife Sanctuary under a nationwide program of the National Institute for Urban Wildlife. The institute is dedicated to enhancing wildlife habitat in urban and suburban areas.

"Stone Park is an excellent example of what can be done to enhance wildlife habitat and to conserve natural history within the shadow of an urban/suburban community," said Gomer E. Jones, president of the institute.

The 1,100-acre park consists of Missouri River bluffs and is bordered on the west side by the Big Sioux River. It is managed as a wildlife refuge and is 90 percent woodland, 4.5 percent prairie and 0.5 percent water areas. It is part of the area called the Loess Hills. As part of its wildlife management plan, the park staff has placed wood duck, bluebird and wren houses in the park to provide additional nesting areas, and maintains bird feeders during the winter months. A 10-acre lake and a two-acre marsh provide natural habitat for many species. An endangered plant, the buffalo berry shrub, is protected at the park. More than 80 types of wildflowers and numerous species of songbirds have also been identified at Stone State Park.

A special feature of the park is the Carolyn Benne Nature Trail, a self-guiding trail through the area.

The National Institute for Urban Wildlife works with private, public and corporate landowners to certify small and large properties as urban wildlife sanctuaries, and to provide educational materials on urban wildlife management. For further information about the Urban Wildlife Sanctuary program, contact the National Institute for Urban Wildlife, 10921 Trotting Ridge Way, Columbia, Maryland 21044, or call (301)596-3311.

STATE PARK WEEK, JUNE 12-18, 1988

"State Park Week 1988 promises to be the best ever," said Doyle Adams, parks and recreation bureau chief for the Department of Natural Resources.

During the week of June 12-18, 1988, Iowa's state parks and recreation areas will host a variety of special events and promotions. Events will range from hay rides, scavenger hunts and fishing tournaments to photo contests, movies and nature hikes. Major events such as the Onawa Lewis and Clark Festival will also be held during the week (June 11-12) at Lewis and Clark State Park.

"We want to bring people out to the parks and show them what we have to offer," said Adams.

Drawings will also be held during the week for 30 days of free camping (20 names will be drawn). Also, pay for six nights of camping and receive the seventh night free.

For more information, contact the individual state parks.

DONATIONS

Eldon Ripperger Burlington	230 pounds of steel, aluminum, and angle iron valued at $130 for park maintenance at Beeds Lake State Park
10 Speeds More or Less Estherville	Cross-country ski trail groomer valued at $350 for Ft. Defiance State Park
Red Oak Chamber of Commerce Red Oak	$100 for playground equipment at Viking Lake State Park
Anonymous	315 pounds of sunflower seeds, peanuts and wild bird seed valued at $101 for Elk Rock State Park

COOPERATIVE TURNS RAIL INTO RECREATIONAL TRAIL

A railroad right of way overgrown with bushes and brambles is being transformed into a 33-mile recreational and nature trail stretching from Waukee to Yale in central Iowa.

The trail, which will pass through Adel, Redfield, Linden and Panora, is being created through a unique partnership between a power cooperative, a volunteer group and local government entities. Central Iowa Energy Cooperative (CIECO) owns the land but is turning over management of the trail to the Iowa Trails Council (ITC), a membership organization devoted to the development of land and water trails in the state. The trails council is working with Dallas and Guthrie County Conservation Boards on the construction and maintenance of the trail.

"This is unique in the fact that it's a cooperative effort between the Iowa Trails Council and a utility, and we haven't done that before," explains Tom Neenan of Center Point, executive director of the Iowa Trails Council.

The CIECO board sees it as a rare opportunity. "It's a way of maintaining the railroad bed for future use and also provide recreation for people who do hiking and biking," says John Heineman of Ogden, president of the CIECO board of directors.

Central Iowa Energy Cooperative is an affiliate of Cedar Rapids-based Central Iowa Power Cooperative. It purchased Lake Panorama and nearby land in the late 1970s when demand for power was high and the utility felt it would need to build a new power plant. CIECO planned to use the lake as a water supply for its coal-fired generating station. Demand for electricity sharply fell in the early 1980s, and the power plant project was halted.

While CIECO foresaw no plant construction, the cooperative wanted to preserve the site. After months of negotiations, CIECO purchased the railroad right of way for $57,918 from the Chicago Northwestern Railroad which was considering abandoning it. However, the National Trails System Act prevented the abandonment because it is being established as a public recreation trail. Under an agreement signed in December 1987, CIECO retains the right to use the land if the power plant construction plans are resurrected.

Completion of the trail will take a couple of years. The rails and ties must be removed and the trees and brush cleared before work on the trail can proceed.

The trail will be used predominantly for bicycling, hiking and cross-country skiing. Current plans call for no motorized vehicles or hunting on the trail, according to Jeff Logsdon, director of the Dallas County Conservation Board.

OUR COVER...

"Spring Calling," red-winged blackbird, by Brian Wignall. A red-winged blackbird stakes his nesting territory, shows off his brilliant colors and calls out for a female. This beautiful bird is truly the first sign that warmer weather is here.

Wignall's artwork has appeared in the national publication, **Birdwatcher's Digest,** *the* **Iowa Turkey Tales Magazine** *and as the 1987 Iowa Trout Stamp. His eight published print editions can be found in every county of the state of Iowa. An avid hunter, fisherman and sportsman, Wignall contributes artwork to numerous wildlife organizations.*

Prints are available direct from the artist — Brian Wignall, 6032 Greendale Place, #206, Johnston, Iowa 50131, (515)253-0465. Prints are $50, and remarques are available for an additional $50.

EDIBLE MARSH PLANTS

Many of the plants eaten by marsh animals can also be used as emergency foods by humans, says Ducks Unlimited. For instance, the cattail's thick, starchy roots can be tasty and nourishing when boiled, roasted, or dried and ground into flour. The green flower heads and pollen are also edible. Another marsh food, the arrowhead, has small tubers or "duck potatoes" at the ends of its roots in the late fall. These can be boiled like potatoes or roasted in a fire.

LANDSCAPING FOR WILDLIFE NOW AVAILABLE

A book designed to help midwestern residents attract wildlife to their yard, farm or woodlot is now available from the Minnesota Documents Division in St. Paul.

Landscaping For Wildlife, produced by the Minnesota Department of Natural Resources and published by the Minnesota Department of Administration Documents Division, includes information on attracting butterflies, hummingbirds, songbirds, pheasants and deer. Designs are included for butterfly and hummingbird gardens as well as landscape plans for yards. It shows how landscaping for wildlife can be simple, fun, inexpensive and appropriate for urban and rural areas.

This new 144-page, full-color book includes more than 70 color photographs and is designed for northern and northeastern regions of the United States as well as the southern and southeastern portions of Canada.

To order *Landscaping For Wildlife*, indicate stock number 9-15 and send $6.95 plus $1.50 for postage and handling to Minnesota Documents Division, 117 University Avenue, St. Paul, Minnesota 55155. Checks should be made payable to the State of Minnesota. Allow four to six weeks for delivery. Additional information is available for quantity purchases and special rates for resale or fundraising purposes.

JUNE IS RIVERS MONTH

Iowa has many beautiful rivers that enhance the quality of life for Iowans. Governor Terry Branstad signed a proclamation May 26 proclaiming June as Rivers Month, coinciding with American Rivers Month where activities are held celebrating the importance of rivers throughout the nation.

This year the Office of the Governor, the Department of Natural Resources and the City of Eldora are cosponsoring the "Governor's Invitational Canoe Trip" on the Iowa River. This trip is to give Iowa's decision-makers the opportunity to experience firsthand the scenic qualities and recreational opportunities Iowa's rivers provide.

Organizations are sponsoring river-oriented events around the state in celebration of Rivers Month and urge all Iowans to take advantage of the recreational opportunities on and along Iowa's rivers.

CLASSROOM CORNER

by Robert P. Rye

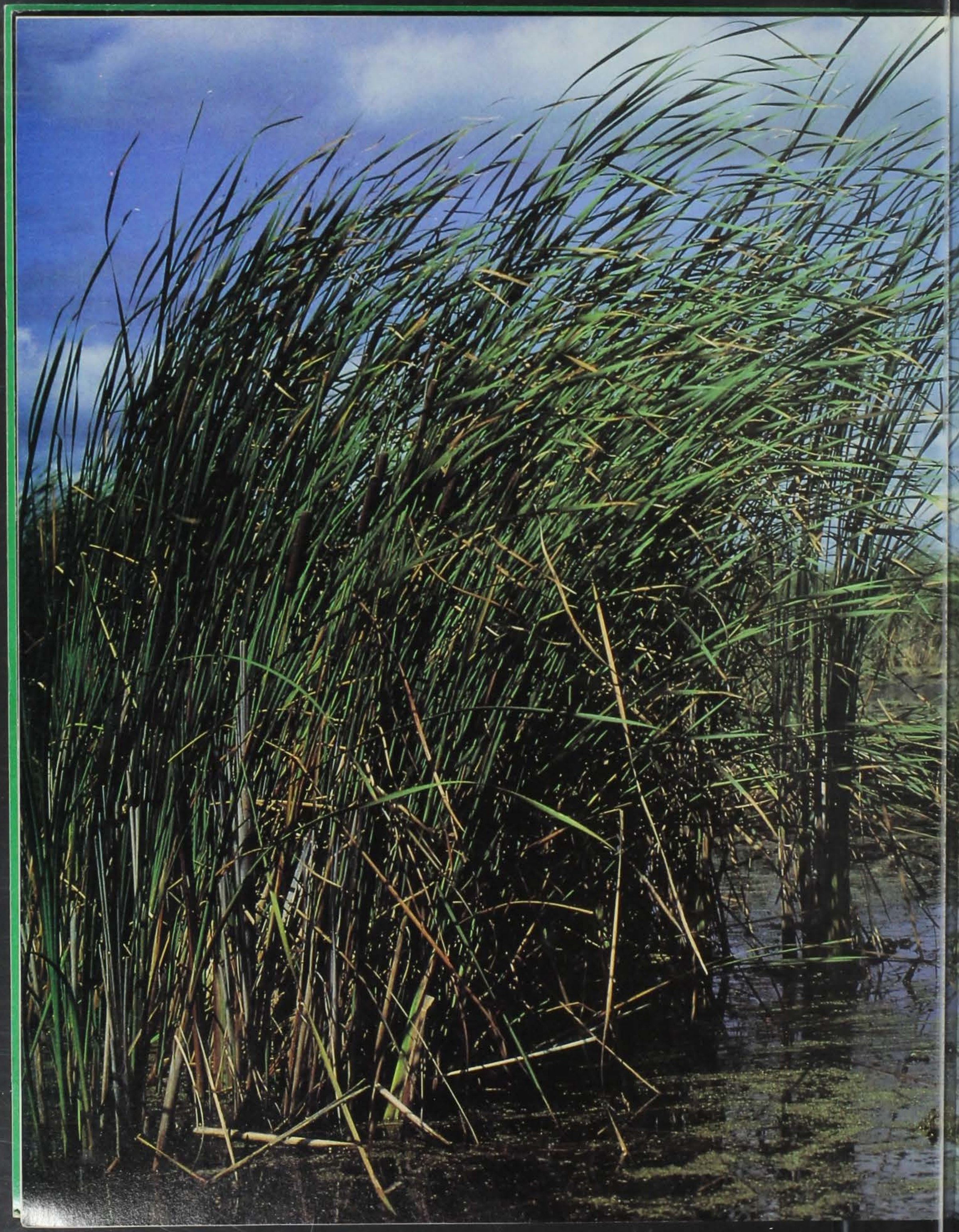
Standing on the road, caught in an inopportune moment, a mink appears to hesitate in deciding which way to run...

A mink is not the most common predator in Iowa. It, like other predators, is important. Have you considered how insect, mouse, or rabbit populations are controlled? Have you considered what would happen if they were not controlled? To check your awareness of mink, try answering the following true/false questions.

1. Mink possess musk glands typical of the weasel family.
2. Mink feed on prey such as mice, rabbits, fish, crayfish and frogs.
3. Mink live in strong family units.
4. Mink live in water and on land.
5. Mink are not aggressive and will not attack animals larger than themselves.
6. Mink are easily trapped.
7. Mink are a rich brown color with a white chin patch.
8. Mink, in the wild, seldom live longer than one and one-half to two years.
9. The average litter size for mink is four or five young.
10. Mink are social animals, making good pets.

Answers:

1. True 2. True 3. False (Female raises young.) 4. True 5. False 6. False 7. True 8. True 9. True 10. False (Wild animals should not be kept as pets.)



ARTIFICIAL MARSHES

They Produce the Real Thing

by Bob Kurtt

Many people may not realize that most of Iowa's large waterfowl areas are not natural marshes, but are indeed artificial. Natural marshes are those semi-permanent glacial marshes that were once common in the prairie pothole region of Iowa, mainly in the northwest and north-central parts of the state.

On the other hand, artificial marshes are defined by biologists and marsh managers as any wetland that is formed wholly or in part by diverting, diking or pumping water. Perhaps a better term for these wetlands is managed marshes. Some good examples of major marsh areas managed primarily for waterfowl in Iowa are river flood-plain impoundments such as Riverton, Sweet Marsh, Otter Creek Marsh, Big Marsh and Elk Creek Marsh.

Nature's Way

To understand the hows and whys of marsh management, we need to first look at natural marshes. Natural marshes are well-known for their cyclic patterns of water level fluctuation. Wet years, dry years, wet years, dry years — the cycle is repeated over and over. Periods of drought may sometimes last for one or more years. Wet conditions might then take over for the next two to five years. If anything is certain, it is that the marsh will change. Let's take a brief look at the cycle of marshes described in five stages by former Iowa State University wildlife professor, Dr. M. W. Weller:

During a dry period when a marsh basin is exposed to air or to a low water level, seeds germinate in the marsh bottom and give rise to a heavily vegetated marsh. This *dry marsh* stage has a low water level and correspondingly few muskrats. Bird populations in this stage of a marsh are usually low and show little species diversity.

As water enters the marsh basin, areas with low emergent vegetation are gradually flooded. Tall emergent vegetation (such as cattails) covers the remaining part of the marsh. Because of the density of the cover, this second stage is called *dense marsh.* Rising water levels make the habitat more favorable for muskrats. Bird numbers and diversity also increase in this stage.

BRUCE MORRISON

Once the water reaches its maximum level in the marsh, the density of the vegetation (cover) starts to decline. The *hemi-marsh* stage is reached when the marsh is about half vegetation and half open water. This interspersion gives the marsh its maximum amount of edge (the junction between two plant zones, or between plants and open water). Because of the excellent interspersion of vegetation and open water, the greatest density *and* diversity of nesting birds occurs during this stage. Muskrats have reached a point where a population explosion is ready to occur. The increased productivity of animal life for aesthetic and recreational purposes makes the hemi-marsh stage the most desirable to maintain for as long a period as possible.

The *open marsh* is the fourth stage in Mother Nature's process, and it may occur as the end result of a high muskrat population in conjunction with maximum water levels. Acting together, these two factors reduce the emergent cover in the marsh. The muskrat population has expanded to its maximum density while numbers and diversity of birds is decreasing. Marshes in this stage can show extreme changes in vegetation over short time periods. As an example, in just one year the dominant species of submergent vegetation may change completely.

The final stage is the *open water marsh* which is characterized by a lake-like appearance. The shoreline may still retain some emergent vegetation. In this stage, the high muskrat population has stripped the marsh of its emergent cover. This "eat-out" causes the bird and muskrat populations to decline. The marsh remains in this condition until a drought or an artificial manipulation reduces the water level to start the cycle all over again.

RON JOHNSON

Blue-winged teal

Marsh Management

Mother Nature's wet and dry cycles can cause drastic changes in wetland habitat. Water fluctuations frequently create undesirable marsh conditions for an extended period of time. To counter this situation, dikes and water control structures can be constructed to provide a more positive form of water level control. These dikes and control structures allow the marsh manager to adjust the form of management to the conditions at hand, instead of waiting for nature to take its course.

A manager has certain objectives in mind when manipulating water levels. Many of these objectives are the same, whether managing a 25-acre marsh along the Waps River or a 3,360-acre wetland complex on the Iowa River floodplain. Some of these objectives may include increasing waterfowl breeding habitat by increasing water depth to create a better interspersion of cover; killing out sedge-grass monotypes or willows by flooding, to bring about a succession of plants from moist soil and upland types to shallow and deep-water aquatics; increasing the production of natural food, such as smartweed, by using growin season drawdowns; drawing the marsh down in the summer to provide mudflat for artificial seeding of moist soil food plants such as millet or wheat; using earl spring drawdowns to make it possible to plant the bottom to corn or other food fo waterfowl; revegetating areas with emer gent cover that were lost to wave and ice action, muskrat activity or continuous deep flooding; and regulating muskrat populations and their activity.

Water level management techniques vary from area to area depending upon the primary use of the wetland and its potential. Each area has its own set of variables, including precipitation, runoff watershed ratio, pumps, control structure capabilities (for retaining water as well as letting it out), water quality, bottom soils and rough fish populations to name a few.

Some questions to ask concerning water level manipulation may be: What i the management goal of the area? Is it fo production, harvest, fish and/or wildlife What is the limiting factor affecting wildlife numbers? What is the anticipated goa or result desired from a drawdown? Hov will water levels be regained and at what time? Is there a fishery present and is it detrimental or compatible?

There is not always a simple answer to these questions. Many times more than one question has to be answered and the result may or may not be desirable. The

individual manager has to make the right decision based on local problems and past history, getting as much input as possible from interested parties in the local area.

The 50/50 cover-water ratio or hemi-marsh stage is probably the most desirable condition to achieve. It provides good conditions for the widest variety of wildlife. In the fall the scattered openings attract and disperse waterfowl as well as hunters. But the marsh manager must realize that this is a dynamic habitat. For this reason, it is not possible to maintain a specific condition of water and vegetation over a long period of time. The overall purpose of water level manipulation is to prolong desired stages and shorten or eliminate certain less-desirable stages.

Today's marsh manager faces another challenge due to intense drainage of adjacent agricultural lands. Summer-long runoff, previously filtered through watershed systems and into marshes, results in a more even water input through dry periods. But modern tiling and ditching systems now cause runoff to leave the agricultural land at a rapid pace, and in some watersheds late summer runoff has been nearly eliminated. This creates some problems in refilling marshes after drawdowns.

On some areas, such as Otter Creek Marsh in Tama County, pumps are installed to supplement watersheds or the lack of precipitation. These pumps are expensive to install and maintain, but are sometimes the only feasible alternative. Many of our major waterfowl areas in the state now use pumping systems of one kind or another.

Another big problem in some Iowa marshes is stream sedimentation and resulting siltation. This is especially true in marshes that have rough, hilly watersheds. Streambank erosion and erosion from farm fields are major problems in these areas. Otter Creek Marsh is a prime example. Since development of this area in 1967, more than 100 acres of wetlands have become completely silted in to the point of being useless for waterfowl. This is a two-fold tragedy — the farmers in the watershed have lost valuable topsoil and the people of Iowa have lost wetlands they cannot afford to lose. Watersheds need to be protected to curtail soil erosion. The recently implemented Conservation Reserve Program (CRP) will help, at least for the next 10 years or so.

As mentioned previously, every marsh is different. There is no cookbook answer to problems for every marsh. Each area has to be looked at objectively to find what works best in the local situation.

Any landowner or land manager who would like help managing a private marsh can contact the local Department of Natural Resources wildlife biologist for assistance. The Soil Conservation Service office in each county can provide the address and phone number of the nearest wildlife biologist.

Just remember, the next time you drive by your favorite marsh and see nothing but mudflats, there's probably a good reason for it. The habitat in that marsh will most likely improve in the months ahead and chances are good that recreational opportunities in the area, particularly waterfowl hunting and watching, will be better.

Bob Kurtt is a wildlife management biologist located in Toledo.

BOB KURTT

BOB KURTT

To duplicate natural processes, marshes are drawn down in the spring to allow for germination and growth of waterfowl food plants (top). Three months later, the same area is flooded to produce quality waterfowl habitat.